Geotechnical Investigation



Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road Mesa, Arizona ProTeX Job No.: 8144



PHOENIX 1102 W SOUTHERN AVE, STE 4 TEMPE, ARIZONA 85282 (O) 602-272-PTX1 (7891) DISPATCH 602-272-7890 (F) 602-272-7892

WWW.PROTEX-AZ.COM



TUCSON 916 W GRANT ROAD TUCSON, ARIZONA 85705 (0) 520-352-1050 (EXT 157) DISPATCH 520-352-0150 (F) 520-352-0150 WWW.PROTEX-AZ.COM

August 21, 2018

PPGN-Crismon, LLLP c/o Silver Fern Companies 1048 North 44th Street, Suite 208 Phoenix, AZ

Re: Geotechnical Investigation

Project: Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road

Mesa, Arizona

ProTeX Job No.: 8144

Attention: Ms. Alegria

At your request, ProTeX has completed a soil investigation for the proposed residential development. The accompanying report includes field observations and laboratory testing supporting our conclusions and recommendations for the proposed development.

Respectfully submitted,

ProTeX - the PT Xperts, LLC



Date Expires: 3/31/2021 Thomas M. Perkins, P.E.



Date Expires: 3/31/2019 Delbert A. Rapier, M.S.E., P.E.

Mesa, Arizona

ProTeX Job No.: 8144



TABLE OF CONTENTS

INTRODUCTION	1
Scope	1
Proposed Site Development	1
Terms and Conditions	1
FIELD AND LABORATORY TESTING	1
· · · · · · · · · · · · · · · · · · ·	
Shrinkage	
RECOMMENDATIONS	7
.1.1 Conventional Foundation System for Patios and Site Walls	7
Exterior Slab-on-Grade	
Lateral Loadings	9
Drainage	9
Slope Stability	10
Pavement Section Recommendations	11
SITE PREPARATION	12
CLOSURE	14
Limitations	
Recommended Additional Services	14
	Scope Proposed Site Development

Cadence - Phases 2 and 3 Ellsworth Road and Guadalupe Road Mesa, Arizona ProTeX Job No.: 8144



APPENDICES

<u>Appendix A – Laboratory Test Results</u>

Hydro-Collapse Tests/In-Situ Moisture and Densities Grain Size Distribution, Atterberg Limits and Expansion Tests Chloride, Sulfate

<u>Appendix B – Site Information</u> Site Plan

Appendix C-Field Testing

Boring Logs

Appendix D-USCS Classification Chart

Legend

Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road Mesa, Arizona ProTeX Job No.: 8144



Executive Summary

ProTeX was contracted by PPGN-Crismon, LLLP to provide general information with respect to the engineering characteristics of onsite soils and provide recommendations for foundations and pad preparation for the site referred to as the Cadence - Phases 2 and 3 located at Ellsworth Road and Guadalupe Road in Mesa, Arizona.

This firm understands the proposed development will consist of one or two story single family residential structures imposing relatively light to moderate foundation loads.

Field investigation and laboratory testing indicated that the site consists mainly of non-plastic to medium plasticity silty sand, silty clayey sand, clayey sand, clayey gravel, sandy silty clay and sandy clay soils. The expansion potential for site soils when foundation bearing soils are exposed to a moisture increase is anticipated to be very low to low for the surface level soils. All lots are subject to expansive soils and post-tensioned slab/foundation systems are recommended.

Settlements at the site are anticipated to be within accepted tolerances provided that pad preparation is performed as specified and no significant changes in moisture content of foundation/floor slab bearing soils occur and proper drainage and irrigation control are maintained. Drainage should be directed away from the structure and off the lot during and after construction and should be maintained for the life of the project. In no case should long-term ponding be allowed near structures. Proper design and placement of yard vegetation and irrigation systems should be used so that structural foundation slab bearing soils are not exposed to moisture content fluctuations.

The site is located within an area of regional groundwater withdrawal; however, based on the Earth fissure Maps provided by the Arizona Geological Survey there is no indication of earth fissures on site or within approximately 3 miles of the site.

Based on the findings of the soils investigation, the site is considered suitable to construct single family residential structures imposing relatively light to moderate foundation loads provided floor and foundation systems are properly designed, soils properly conditioned as specified and proper maintenance of drainage and irrigation systems. All parties should be aware that the site soils are clayey and have a potential for expansion. Fluctuation in moisture content of foundation bearing soils may result in slight movements that may result in cosmetic distress.

Mesa, Arizona

ProTeX Job No.: 8144



1.0 INTRODUCTION

1.1 Scope

ProTeX was retained by PPGN-Crismon, LLLP to evaluate the surface and subsurface soil conditions. The content of this report contains the findings from the field exploration and laboratory testing, with supporting recommendations for the proposed development.

1.2 Proposed Site Development

It is this firm's understanding the proposed development will consist of one or two story single family residential structures of masonry, wood and/or steel frame construction imposing relatively light to moderate foundation loads.

1.3 Terms and Conditions

This report was prepared for PPGN-Crismon, LLLP. The contents of this report may not be relied upon by any other party without the expressed written permission of ProTeX - the PT Xperts, LLC and the written permission of PPGN-Crismon, LLLP. The report presents site conditions at the time of the investigation and for the aforementioned proposed development. The report should be updated prior to construction if a maximum of one year has elapsed from the issued date.

2.0 FIELD AND LABORATORY TESTING

2.1 Geotechnical Site Reconnaissance

The site consists of approximately 161 acres of currently undeveloped land. At the time of the field site visit on July 27, 2018 the following site conditions were observed:

- Native desert landscape with light cover of small trees, bushes and weeds
- Small wash traversed from east to west in the northern portion of the site
- Dirt lined canal located near the south east portion of the site
- End dump stockpiles in the south east corner of the site near the canal
- General slope and drainage of the site trends toward the south

Cadence - Phases 2 and 3 Ellsworth Road and Guadalupe Road Mesa, Arizona

ProTeX Job No.: 8144



2.2 Field Investigation

A total of 34 test holes were completed at the site for the purpose of evaluating subsurface conditions. All of test holes terminated at a nominal depth of 15 feet. In addition, 12 test holes were completed, in the proposed roadways, to determine soil properties for pavement design. At each test hole location, the soils encountered were visually observed, classified, logged and representative samples were obtained where applicable. Refer to the site plan in Appendix B for approximate test hole locations.

2.3 Laboratory Testing

Subsequent to the field investigation, soil samples were submitted for laboratory testing. Tests were performed to determine the following:

- **Hydro-collapse** Used to evaluate undisturbed lateral ring confined (obtained from a split-barrel California-type Sampler) one-dimensional vertical soil movement under load (1500 and 3000 psf) to water inundation/saturation in general accordance with the American Society for Testing and Materials (ASTM) Test Method D4546.
- Sieve Analysis and Atterberg Limits- Used for formal classification of soils in general accordance with the Unified Soil Classification System (USCS) per ASTM Test Method D2487. Sieve analysis is performed in general accordance with ASTM Test Methods D421, D422 and D-1140. The Atterberg Limits were determined in general accordance with ASTM Test Method D-4318.
- Expansion Index- To determine the potential expansion of remolded soils based on the Expansion Index Test Method (ASTM D4829).

Expansion Index- Expansive Potential Categorization			
0-20 Very Low			
21-50	Low		
51-90	Medium		
91-130	High		
>130	Very High		

• Sulfates and Chlorides- To determine levels of water soluble sulfate (ARIZ 733) and chloride (ARIZ 736) content, which could negatively impact project steel/concrete.

Cadence - Phases 2 and 3 Ellsworth Road and Guadalupe Road Mesa, Arizona

ProTeX Job No.: 8144



Laboratory Test Summary

Location	Depth	PI	%Passing #200	% < 0.002mm	USCS Soil Class	Expansion Index
B1	0-3'	10	79	25.6	CL	29
B1	5-7'	18	60.7	23.3	CL	30
B2	0-3'	9	77.1		CL	
B2	7-9'	13	64.4		CL	
В3	0-3'	8	58.6		CL	
B4	0-3'	8	54		CL	
B4	4-6'	12	65.7		CL	
B5	0-3'	11	54.2		CL	
В6	0-3'	7	76		CL-ML	
B6	8-10'	17	77.1		CL	
В7	0-3'	10	54.4		CL	
В8	0-3'	11	64.7		CL	
B8	5-7'	9	66.4		CL	
B 9	0-3'	9	48.5		SC	
В9	5-7'	14	43.3		SC	
B10	0-3'	13	31.4		GC	
B11	0-3'	10	59.7		CL	
B11	5-7'	18	71.7		CL	
B12	0-3'	NP	38.6		SM	
B13	0-3'	9	51.8		CL	
B13	6-8'	10	60.8		CL	
B14	0-3'	6	55.3		CL-ML	
B14	10-12'	8	46.2		SC	
B15	0-3'	15	59.3		CL	
B16	0-3'	10	57.5		CL	
B16	4-6'	16	74.4		CL	
B17	0-3'	5	39.2		SC-SM	
B18	0-3'	8	47.2		SC	
B18	6-8'	20	69.3		CL	
B19	0-3'	7	66	20.8	CL-ML	31
B20	0-3'	14	70.1		CL	
B20	5-7'	18	78.7		CL	
B21	0-3'	10	68.5		CL	
B22	0-3'	8	71.1		CL	
B22	7-9'	7	55.8		CL-ML	
B23	0-3'	NP	15.5		SM	
B24	0-3'	8	61.3	24.2	CL	
B24	6-8'	13	68.4	21.8	CL	26
B25	0-3'	10	52.5		CL	
B26	0-3'	10	70.8	22 /	CL	2.5
B26	6-8'	10	70.8	22.4	CL	26
B27	0-3'	10	62.9		CL	
B28	6-8'	7	75.7		CL-ML	
B28	0-3'	8	72.5		CL	
B29	0-3'	11	80.2		CL	
B30	0-3'	8	73.2		CL	

Mesa, Arizona

ProTeX Job No.: 8144



Location	Depth	PI	%Passing #200	% < 0.002mm	USCS Soil Class	Expansion Index
B30	8-10'	12	78.9		CL	
B31	0-3'	6	72.4		CL-ML	
B33	0-3'	5	40.3		SC-SM	
B34	0-3'	8	70		CL	
B34	5-7'	4	52.3		CL-ML	12
BC1	0-3'	10	78.5		CL	
BC2	0-3'	7	64.4		CL-ML	
BC3	0-3'	9	53.9		CL	
BC4	0-3'	NP	36.1		SM	
BC5	0-3'	9	69.5		CL	
BC6	0-3'	14	85.3		CL	
BC7	0-3'	7	46.8		SC-SM	
BC8	0-3'	9	49.3		SC	
BC9	0-3'	8	66		CL	
BC10	0-3'	12	71.9		CL	
BC11	0-3'	10	80		CL	
BC12	0-3'	10	64		CL	

See Appendix A for a detailed compilation of the laboratory test results.

3.0 GENERAL SITE CONDITIONS

3.1 Soil Stratigraphy

Based on the field exploration and laboratory testing the subsurface profile, to the depths explored, consist primarily of silty sand, silty clayey sand, clayey sand, clayey gravel, sandy silty clay and sandy clay of non-plastic to medium plasticity extending to depths explored. Refer to the boring logs in Appendix C for a detailed description of the subsurface soil profile.

3.2 Potential for Soil Hydro-Collapse (Settlement Potential)

Laboratory tests and Blow Counts (N-values) indicate the subsurface soils have a low potential for hydro-collapse at the anticipated foundation load of 1500psf (See the attached laboratory test results and boring logs). The potential for hydro-consolidation of the subsurface soils can be mitigated. Foundation bearing soils should be over-excavated and re-compacted. (See Section 5.0 – Site Preparation).

Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road

Mesa, Arizona

ProTeX Job No.: 8144



3.3 Potential for Soil Expansion (Expansion Potential)

The expansion potential of the native soils, to the depths explored based on ASTM test method D4829, is considered very low to low. Soils selected for testing for expansion potential were those that represented clayey soils with varying plasticity index values to determine the range of expansive potential soils across the site. The Expansion Index values typically tend to be higher with higher plasticity indices as can be seen in the test data for the site. The soils that tested non-plastic are comprised of silts and sands and are considered to have a very low potential for expansion and thus were not tested.

3.4 Potential for Corrosion

Soils were tested for water soluble sulfates and chlorides The International Building Code specifies limits for soluble sulfate levels of 1000ppm. The soils tested yielded results below these levels and do not require any specialized design requirements. The test results are presented in Appendix A.

3.5 Excavation and Workability

Based on the soil borings, it is anticipated that conventional excavation equipment may be utilized to depths of 15 feet. However, this generalized assessment is not intended to be the sole basis for contractors preparing earthwork bids. Undiscovered shallow bedrock, cemented soils, cobbles, boulders, and weathered/broken bedrock may make excavation more difficult than expected. In addition, the relative ease/efficiency of excavation is heavily dependent on operator skill and the type of equipment assigned to the project. Thus, prospective earthwork contractors bidding on this project need to assess site excavation conditions for themselves. Trench shoring, benching, or laying back of excavations greater than 3 feet in depth may be required to satisfy government safety regulations for personnel safety.

3.6 Earth Fissure Review

The site is located within an area of regional groundwater withdrawal. Arizona Geological Survey has been commissioned to study earth fissures associated with the groundwater withdrawal. The Earth Fissure Maps provided by the Arizona Geological Survey indicate no known earth fissures on site or within approximately 3 miles of the site.

Mesa, Arizona

ProTeX Job No.: 8144



3.7 Seismic Characteristics

The subject site is located in an area of low seismic activity. Values have been developed based on knowledge of the local geological conditions, soils encountered during the site investigation of the subsurface soils, and the 2012/15 International Building Code (IBC). Based on knowledge of the geology of the area a 100 feet boring was not advanced.

Site Class	D (Stiff Soil Profile)
Central Latitude	33.309018°N
Central Longitude	111.618504° W
S _s Spectral Acceleration for Short Period	0.201g
S ₁ Spectral Acceleration for a 1-Second period	0.063g
Fa Site Coefficient for Short Period	1.60
F _v Site Coefficient for a 1-second Period	2.40

3.8 Liquefaction Potential

The soil encountered during the site investigation consisted of silty sand, silty clayey sand, clayey sand, clayey sand, clayey gravel, sandy silty clay and sandy clay. Based on the soil types and the low ground motion hazard (relatively low ground acceleration), the potential for liquefaction of the site soils is considered to negligible.

3.9 Shrinkage

Field and laboratory tests such as blow counts (N-values), in-situ densities, and hydro-collapse testing indicates that during grading, soils will likely be compacted to densities greater than the current density of the native soils. Both site specific testing and experience indicates that there is variability of the site soils subsurface and thus shrinkage across the site will vary such that uniform shrinkage across this site during earthwork operations is unlikely. The shrinkage values provided are based on standard construction techniques and may vary depending on the equipment used and the manner in which the grading is performed.

Depth (ft)	Estimated Shrinkage (%)
0-3	15-20

Mesa, Arizona ProTeX Job No.: 8144



4.0 <u>RECOMMENDATIONS</u>

The recommendations contained herein are based on the findings of the field investigation, laboratory test results and local experience.

4.1 Foundations

It is highly recommended that the design of foundations be done under the direction of a registered professional engineer with structural expertise. Post-tension slab-on-grade foundations may be utilized in the design of light to moderately loaded single family residential structures. Conventional foundations can be utilized for isolated patio footings, site walls or in conjunction with post-tensioned slabs. It is recommended that foundation excavations be inspected prior to placement of concrete to ensure they are free of debris and loose soils. Laboratory testing indicates that the expansion potential of the site soils varies between vary low to low; Thus, it is recommended that a post-grading soils report be performed following site grading activities to determine the final foundation design.

4.1.1 Conventional Foundation System for Patios and Site Walls

Shallow foundations systems should bear a minimum of 1.5 feet below lowest adjacent grade extending laterally within 5 lateral feet from the edge of foundation. Due to the properties of the native soils as indicated by laboratory testing, it is recommended that foundations bear on native undisturbed soils or controlled compacted fill. Controlled compacted fill may consist of on-site and/or imported material that is placed or areas that are scarified, moisture processed and recompacted. The following table provides allowable bearing capacities for the site.

Allowable Bearing Capacity for Shallow Depth Conventional Foundation Systems for Patios and Site Walls:

*Footing Depth (ft.)	Bearing Stratum	Allowable Soil Bearing Capacity
1.5	Firm Undisturbed Native soils or Controlled Compacted Fill	1500 psf

^{*}Depth to base of perimeter footings is measured from the lowest adjacent finished grade elevation within 5 feet of edge of footing. Depth to base of interior footings measured from top of floor slab.

Foundation widths should meet building code minimums and should not be larger than 7 feet and 4 feet, for spread and continuous foundations, respectively.

Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road

Mesa, Arizona

ProTeX Job No.: 8144

The recommended foundation bearing pressures should be considered allowable maximums for

dead plus design live loads and may be increased by one-third when considering total loads

including transient wind or seismic forces. The weight of the foundation concrete below grade

may be neglected in dead load computations.

Foundation excavations should be inspected to verify that they are free of loose soil that may have

blown or sloughed into the excavations and ensure that the footings will bear upon firm native

undisturbed soils or engineered fill.

The stem walls should be well reinforced to distribute stresses caused by possible non-uniform

bearing capacity and/or minor differential foundation movements. It is recommended that stem

walls and footings be reinforced. The structural engineer should design the footings and stems for

the site soil conditions.

Preparation of the site to raise or lower the building pad should be done in accordance to the

Section 5 - Site Preparation.

4.1.2 Post-tension Slab-on-Grade Foundation System

For the purpose of the post-tension slab design an allowable bearing capacity of 1250psf is

assigned. The post-tensioned foundation system should bear on a minimum of 1.0 feet of

controlled compacted fill. The following design parameters are assigned for use in the structural

design of the foundation systems.

Soil Subgrade Modulus (Ks)(for compacted fill):

Edge Moisture Variation (Em):

5.0 feet Edge Lift Condition: Center Lift Condition: 9.0 feet

Maximum Differential Soil Movement (Ym):

Edge Lift Condition: 0.5 inches

Center Lift Condition 0.3 inches

8

Mesa, Arizona

ProTeX Job No.: 8144



4.2 Exterior Slab-on-Grade

Exterior slabs on grade should bear directly on grade and contain a minimum of 5.0 sacks of Portland cement per cubic yard with a minimum thickness of 5 inches. A minimum of 6 inches of subgrade should be scarified moisture processed and compacted to the specifications in the earthwork section of this report.

4.3 Lateral Loadings

The design of retaining walls for the site should be designed to retain the lateral loads applied by the site soils. The following values are provided in Equivalent Fluid Pressures for unrestrained, restrained and passive resistance.

Lateral Equivalent Fluid Pressures for Backfill:

*Unrestrained Walls	35 pcf
*Restrained Walls	50 pcf
Passive Resistance	373 pcf
Coefficient of Base Friction:	0.50

^{*}The backfill pressures stated do not include temporary forces imposed during compaction of the backfill, swelling pressures developed by over-compacted clayey backfill soils, hydrostatic pressures from inundation of backfills, and/or surcharge loads. Walls should be suitably braced during backfilling to prevent damage and deflection.

Design of below grade structures should account for or prevent potential hydrostatic buildup. In addition, any below grade structure penetrations to facilitate drainage may allow piping of soil and water if not addressed properly in the design of the structure.

4.4 Drainage

Establishment and long term maintenance of proper lot post-construction surface drainage is

critical. Because of the potential for an adverse effect on structures, it is highly recommended that moisture infiltration and fluctuation of bearing soils for structural foundation/floor be minimized. Roof runoff should be collected and discharged away from the house structures. Drainage of surface water away from the



structures should be provided during construction and maintained by the homeowner throughout the life of the structure. In no case should long-term ponding be allowed near house structures. IRC

Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road

Mesa, Arizona

ProTeX Job No.: 8144

THE PT PERTS L.L.C.

Section R401.3 specifically requires "The grade away from the foundation walls shall fall a minimum

of 6 inches within the first 10 feet. Where lot lines, walls, slopes or other physical barriers prohibit 6

inches of fall within 10 feet, drains or swales shall be provided to ensure drainage away from the

house structure". Thus, un-drained landscape "islands" bounded by concrete flatwork and/or

foundation wall/slab elements are to be avoided. Installation of rain gutters along the perimeter of the

residential structure with drain systems to transport water away from the foundation and to the outfall

of the lot is an option to minimize moisture infiltration and fluctuation of bearing soils for structural

foundation/floor systems.

In yard areas, it is suggested that, where possible, finished slopes extend a minimum of 10 feet

horizontally from building walls and have a minimum vertical fall of 6 inches. Backfill against

footings, exterior walls and in utility trenches should be compacted to minimize the possibility of

moisture infiltration through loose soil.

Drainage and moisture infiltration should be considered during landscaping design and placement

to ensure foundation and slab bearing soils are not exposed to moisture infiltration or moisture

content fluctuation. Distance from house structures to vegetative plants, planters, irrigation lines

or landscape borders should not be less than 3 feet. Trees should be placed at a distance of 8 feet

or more. Landscape irrigation schedules should be adjusted for climatic changes to minimize

moisture content fluctuation of foundation bearing soils.

4.5 Slope Stability

Stability of cut and fill slopes are dependent on soil properties such as density, cohesion, moisture

content, etc. Site specific laboratory testing and experience indicates that these properties can vary

significantly across the site. Temporary slopes for installation of underground utilities or structures

should follow OSHA guidelines. A minimum slope of 2.5:1 horizontal to vertical may be utilized

for design of cut slopes and compacted fill slopes. The slope recommendation does not consider

safety for fall dangers.

10

Mesa, Arizona

ProTeX Job No.: 8144



4.6 Pavement Section Recommendations

The pavement recommendations have been prepared in accordance with City of Mesa requirements and specifications. The design for local/residential streets, collector and arterial (Crismon Road) pavement sections are based on the surface soil properties and City of Mesa Standard Detail M19.1.

Recommendations for pavement sections utilizing Asphaltic Concrete (AC) Pavement:

	AC	AC	ABC
Street Classification	Surface Course	Base Course	Fill
	(inches)	(inches)	(inches)
Local Streets/Residential Streets	3.0 (R-1/2")	N/A	6.0
Collector Streets	3.5 (R-3/4")	N/A	6.0
Major Collector	2.0 (A-1/2")	3.5 (A-3/4")	10.0
Arterial Street (Crismon Road)	*2.0 (A-1/2") PMTR+/-	3.5 (A-3/4")	10.0

^{*}PMTR – All new and rehabilitated arterial street surface course asphalt shall be polymer modified terminal blend rubber (PMTR+) per EVAC Criteria

Care should be taken with regard to parkway grading, placement of landscape vegetation and irrigation systems to minimize moisture infiltration in subgrade soils below pavement sections. In addition, the use of monolithic curb/sidewalk combination placement and soil cement of subgrade soils may be considered for long-term performance.

Pavement materials and placement should conform to Maricopa Association of Governments (M.A.G.) specifications. In no case should pavement surfacing be placed on unstable wet subgrade and/or aggregate base course.

 $Cadence - Phases \ 2 \ and \ 3$

Ellsworth Road and Guadalupe Road

Mesa, Arizona

ProTeX Job No.: 8144

THE PT OPERTS L.L.C.

5.0 SITE PREPARATION

The following recommendations are presented for site grading. It is recommended that a ProTeX geotechnical engineer's representative observe and test the earthwork and foundation portions of this project to ensure compliance with this Soil Investigation report.

Prior to placement of fill a representative of ProTeX should observe the clearing process. Clearing will include removal of: (including but not necessarily limited to):

- Trees, bushes, weeds and associated root systems
- Loose soils in and around the wash
- End dump stockpiles

The areas cleared should be inspected prior to and during scarification for evidence of organic material or loose areas that may require additional removal or processing.

Due to site vegetation, the surface soils should be over-excavated a minimum depth of 1.0 foot below existing grade or 1.0 feet below final pad elevation, whichever is deeper. It is recommended that the over-excavation extend across the entire building pad and to a minimum lateral distance of five feet beyond foundation edges.

After clearing and over-excavation, the exposed soils should be scarified a minimum of 8 inches, moisture conditioned and compacted. The surface should be free from ruts, or other uneven features that would tend to prevent uniform compaction by the equipment used.

Sloping areas steeper than 5:1 (horizontal: vertical) should be benched to reduce the potential for slippage between slopes and fills. Benches should be level and wide enough to accommodate compaction and earth moving equipment.

Fill material should be free of organics, vegetative matter, deleterious or foreign material, rocks, and lumps having a diameter of more than 6 inches. Native soils may be used as fill material provided they are compacted as specified. If imported fill material is required, it should be approved very low expansive potential soils.

Mesa, Arizona

ProTeX Job No.: 8144



Fill material should be placed in layers, that when compacted, do not exceed 6 inches. Each layer should then be placed evenly and thoroughly mix during spreading to ensure uniformity of moisture throughout each layer. Each fill layer should be compacted to specified density and moisture content.

Compaction equipment should be able to compact the fill to the specified density. Compaction of each layer should be continuous over its entire area and the compaction equipment should make sufficient passes to ensure that density has been obtained.

Soil compaction is recommended to the following densities and moisture contents as determined in accordance with ASTM D-698, AASHTO T-99 or applicable equivalent:

Compaction Specifications for Post-Tension and Conventional Foundations					
Material	Compaction	Percent Moisture			
Below Conventional Foundation Level and Post-Tension Slab-on-Grade	90-95%	Optimum to +4			
Fills at Depths 5 to 10 Feet Below Finish Grade	98% Min	-2 to +2 of Optimum			
Fills at Depths 10 Feet or Greater Below Finish Grade	100% Min	-2 to +2 of Optimum			

A ProTeX geotechnical engineer's representative should observe the grading operations to verify that all cut and fill areas are in accordance with the specifications. This office should be notified prior to earthwork operations so that appropriate observation and materials testing can be provided.

When work is interrupted by heavy rains, fill operations should not be resumed until the geotechnical engineer's representative indicates that the moisture content and density of the previously placed fill are as specified.

If building pads are altered or portions excavated as a part of construction activities, fill soils should be compacted as specified. If pads are not built on for an extended period of time, reconditioning of build pads may be required. Should this be the case, a representative of ProTeX should evaluate the pads for further recommendations.

Mesa, Arizona

ProTeX Job No.: 8144



6.0 CLOSURE

6.1 Limitations

The recommendations contained in this report are based on the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the test holes. Should unusual material or conditions be encountered during construction, the ProTeX geotechnical engineer should be notified to make supplemental recommendations should this be required. This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned.

The scope of services for this project does not include any environmental assessment of the site or identification of contaminated or hazardous materials or conditions.

The findings of this report are considered valid as of the present date. However, changes in the conditions of the site can occur with the passage of time, whether due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

6.2 Recommended Additional Services

The recommendations provided in this report are based on the assumption that a testing plan will be implemented with an adequate schedule of testing to ensure that the construction process meets the recommendations/specifications presented in this report. The testing and observation should be performed under the direction of the ProTeX Geotechnical Engineer/representative and should include, but not necessarily be limited to the following:

- 1. Observe and document that the existing surface and subsurface structures, vegetation and abandoned utilities are removed from the site as required in the earthwork section.
- 2. Approve and document that fill material used as engineered fill in building and pavement areas meets the specifications.

Cadence - Phases 2 and 3 Ellsworth Road and Guadalupe Road Mesa, Arizona

ProTeX Job No.: 8144



- 3. After clearing the site; monitor the over excavation, scarification and removal of any soft/loose conditions down to firm native soils.
- 4. Monitor and test placement of fill soils in building and pavement locations to verify and document conformance with project specifications.

Appendix A



	on, LLLP Builder: <u>PPG</u>		ame: Cadence	
Job Name: <u>Ph</u> a			mber: <u>185104</u>	
	Job ID #: 81.44		eived: 8/1/2018	Sampled: 7/30/2018.
	o Samples - Native		d By; Spencer Drenth.	
Material Source: On	-Site		d By:	······································
		Load (PSF)		
10	.100	1606	100	ago 160600
8	~~*~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	annan-aankaan-aak-ak-ak-ak-ak-ak-aanaanaakaa	onnahaannamandunahaat-aanaadunah	
5				
† !				
		Manage Manage and Mana		
		·		
·		:		
-				
-				i i i i i i i i i i i i i i i i i i i
l				
	Source:	B14 - Rings 5'		
Moisture Conter	nt: 3.8 %		Sample Type:	Undisturbed
Dry Unit Weight	101,916/4/3		Load at Saturation:	500 PSF
Remarks:	,		Reviewed By: jg	rossarth
			,	



	lient: PPGN-Crismon, LLLP Builder: PPGN-Crismon, LLLP Project Name: Cadence				
			fumber: 185107 sceived: 8/1/2018 Sampled: 7/30/2018.		
			ceived: 8/1/2018 Sampled: 7/30/2018. led By: Spencer Drenth.		
Material Source: On			ed By:ed Ry:		
		Load (PSF)			
10-	.100]	1606	1000	9 160606	
-8 -	randarina di mandi mandi mada mada mandi mada mada mada mada mada mada mada ma	erenneniperenneniperenipereniperenipereniperenipereniperenipereniperenipereniperen	ererererederereredererereinerepperenteretereineidelegter	retered produced and accompanies of the continuous and accompanies of the	
-6					
:					
4					
4					
-2					
0.					
		* *			
2		\			
4			*		
Ď					
8.	,			· · · · · · · · · · · · · · · · · · ·	
10					
12					
*:					
14					
	,. 	97,100 33.			
	Source:	B19 - Rings 1.5'			
Moisture Conte	nt: 6:0 %		Sample Type:	Undisturbed	
Dry Unit Weigh	t: <u>90.4</u> 16/ £ /3		Load at Saturation:	500 PSF	
Remarks:			Reviewed By: jgr	ossarth	



lient: <u>PPGN-Crismon, Ll</u> Job Name: Phases 1		DIN-WIISHOR, LLLP		une: <u>Cadence</u> aber: 185109.				
Job ID #: 8144				ived: 8/1/2018		Sampled: 7/	30/2018.	
Material: Geo Sar	mples - Native			l By: Spencer E	Drenth.			
Material Source: On-Site								
			(PSF)					
10- -8 -∮	.100		<u>0</u> 00		10000		160	000
6								
4 +								****
? .								
3	:							
		4		1 :				
? -			*					
٩						<u></u>		
5								
				₩.				
g·-								
3 -								
Σ								
1							.,,	
V						<u></u>		
	Source:	B22 - Rio	gs 5'					
Moisture Content:	4.0 %			Sample Type	.	Ondisturbed		
Dry Unit Weight:	92.6 lb/ft/3			Load at Satu	ration	500 PSF		
Remarks:	 .			Reviewed By	a jgros	sarth		



Job Name: Phases	LLP Builder: <u>PPG</u> 2 and 3	_ Gimmon Diri		ne: <u>Cadence</u> ber: 185110.		
Job ID #: 8144				/ed: 8/1/2018	Sampled: 7/30/201	8.
Material: Geo Sa	miples - Native		Sampled	By: Spencer Drenth	<u> </u>	
laterial Source: On-Site	e			ßy:		
		Load	(PSF)			
10-	.100		200	10 <u>0</u> 0		10000
:						
						vi vev
			.:			
						:
		Maria de la companya della companya				
			No.			:
;				<u> </u>		:
1				1		
6			<u> </u>		<u> </u>	 :
3:		·	<u> </u>			
) -						
						:
}						
						:
} · .						
t:	.4		· · ············		-	
	Source:	1825 - Rings	s 1.5′			
Moisture Content:	4.7 %			Sample Type:	Undisturbed	
Dry Unit Weight:	97.7 lb/ft/3			Load at Saturation:	500.PSF	
Remarks:	 .			Reviewed By: ign	rossarth	



Client: PPGN-Crismo		ON-Crismon, LLLP		ame: <u>Cadence</u>			
Job Name: <u>Pha</u> Job ID #: <u>81</u> 4				nber: <u>185111</u> ived: 8/1/2018		Sampled: 7/30	/2018
	o Samples - Native			l By; Spencer Dr	enth.	ciantproct. 77,500	, , , , , , , , , , , , , , , , , , ,
Material Source: On				l [3y;			
		Load	r (PSF)				
10-	. 10 0		gog.		10000		160606
-8		·					4
		•					
-6							: ::
					:		::
4							
						i i	
-2				······································			
0 .4		the constitution of the co					. ::
		A Contraction of	%. %.			: :	: : ::
2			· · · · · · · · · · · · · · · · · · ·				
		:	**			:	
4			1				
1				>	:		::
5 ~			:				
6 -							
1							
10							
					: :	: :	: ::
12							
14							
ł		iiii	.1				
	Source:	B30 - Ring	\$ 1.5'				
Moisture Conten	it: 7.0 %			Sample Type:	-	Undisturbed	
Dry Unit Weight	86.7 lb/ft/3			Load at Satura	tion	500 PSF	
Remarks:				Reviewed By:	jgros	sarth	



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185039 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B1 (0-3')	Submitted By:	

AASHTO T89/T90						
Plasticity Index						
Liquid Limit	25					
Plastic Limit	15:					
Plasticity Index	10					

Expansion Index, (EI)	Potential Expansion	Expans	on In
0 - 20	Very Low		
21 - 51	J.ow		ľ
52,90	Medium	EI =	29
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	
Notes:	

pH and Resisti	vity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NA

Symbol: Cb

Moisture Density (Proctor)					
Max. Dry Density.	ŇV:				
Opt. Moisture %	NV				
Corr. Max, Dry Density	N Y				
Corr. Opt. Moisture %	NV				
% Rock	NV:				

* - out of specification

Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		Ţ
#10	99		
#40	92		
#100	86		
#200	79		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLDP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185040 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B1 (5-7')	Submitted By:	

AASHTO T89/T90						
Plasticity Index						
Liquid Limit	-30					
Plastic Limit	12					
Plasticity Index	18					

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow		
52,90	Medium	E3 =	30
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	l

pH and Resistivity		
pH Reading:	ŅĄ	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

	AASHIDT	4 4.64.25	
Sieve	% Pass	Specs.	*
1,"	100		T
1/27	100		
#4.	99		
#10	96		
#40	84		
#100	71		
#200	64		

Remarks:

Reviewed By:



Tempe, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185041 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B2 (0-3')	Submitted By:	

AASHTO T89/T90			
Plasticity Index			
Liquid Limit	24		
Plastic Limit	15		
Plasticity Index	9		

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 5Ĵ	J,ow
52,90	Medium
9Î - 130.	High
> 130	Very High

Expans	ion ludex
E1 =	NA

% Swell Notes:	NV

pH and Resisti	vity
pH Reading.	NA.
—	

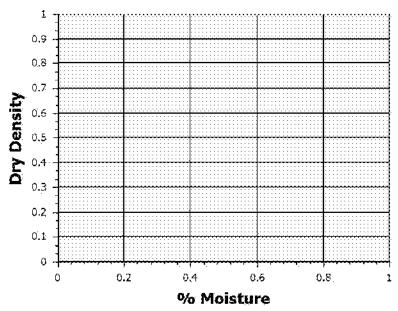
Class: Lean clay with sand. Symbol: Cb

AASHTO T272	
Moisture Density	(Proctor)
Max. Dry Density.	116.9
Opt. Moisture %	13.6
Corr. Max, Dry Density	117.0
Corr. Opt. Moisture %	13.6
% Rock	0

* - out of specification

Sieve	% Pass	Specs.	*
1"	100		
1/2"	100		
#4.	100		Ţ
#10	99		
#40	9a .		
#100	86		
#200	77		

Moisture Vs. Density



Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185042 - Phoenix
Job Name:	Phoses 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018
Sample Location:	B2 (7-9')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	31
Plastic Limit	18
Plasticaty Index	13

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

Notes:

pH and Resistivity	
рН Кеабиц.	.NA
Resistivity (ohms-cm)	NA

Symbol: Cb

Moisture Density (Proctor)	
MaxDry.Density.	ŃΫ
Opt. Moisture %	NV
Corr. Max. Dry Density	NY
Corr. Opt. Moisture %	NV
% Rock	NV:

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		
#10	99		
#40	93		
#100	79		
#200	64		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLEP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185043 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B3 (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	14.
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resis	tivity
pH Reading.	
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
Max. Dry Density.	NV:
Opt. Moisture %	NV
Corr. Max, Dry Density	ŊΥ
Corr. Opt. Moisture %	NV
% Rock	2

* - out of specification

	AASHIOT	11/F27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	99		1
#4.	98		
#10	96		
#40	86		
#100	72.		
#200	59		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185044 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B4 (0-3')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
	·····	
Liquid Limit	21	
Plastic Limit	13	
Plasticity Index	8	

Expansion Index, (EI)	Potential Expansion	Expans	ıcıı İsd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Mediun	E3 =	NA
91 - 130.	High		
> 130	Very High		<u></u>

% Swell Notes:	NV

pH and Resis	tivity
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
MaxDry.Density.	ŃV:
Opt. Moisture %	NV
Corr. Max. Dry Density	NV
Corr. Opt. Moisture %	NV
% Rock	1.

* - out of specification

	AASIHOT	11/T27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	99		
#10	96		
#40	83		
#100	66		
#200	54		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185045 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B4 (4-6')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
Tionald Limit	20	
Liquid Limit	-30	
Plastic Limit	18	
Markinda Indon	12	
Plasticity Index	12	

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		1
> 130	Very High		

% Swell	NV
Notes:	l

pH and Resis	tivity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NA

Moisture Density	(Proctor)
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max, Dry Density	N Y
Corr.,Opt, Moisture %	NV
% Rock	1.

* - out of specification

	AASHIOT	11/F27	
Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	99		
#10	97		
#40	89		
#100	27		
#200	66		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185046 - Phoenix
Job Name:	Phoses 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B5 (0-3')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	23
Plastic Limit	12
Plasticity Index	11

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52, - 90	Medium	$\mathbf{E}\mathbf{i} =$	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading:	ŅĄ	
Resistivity (ohms-cm)	NĄ	

Moisture Density	(Proctor)
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max, Dry Density	N Y
Corr.,Opt, Moisture %	NV
% Rock	2

* - out of specification

~.	I as B	<u></u>	*
Sieve	% Pass	Specs.	^
1"	100		T
1/2"	100		
#4.	98		1
#10	94		
#40	79		
#100	66		
#200	54		

Reviewed By:

Jetald W Grossarth

Remarks:



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLLP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX/Lab No::	185047 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B6 (0-3')	Submitted By:	

AASHTÓ T89/T90			
Plasticity Index			
Liquid Limit	22		
Plastic Limit	15		
Plasticity Index	7.		

Expansion Index, (EI)	Potential Expansion	Expans	ıcıı İsd
0 - 20	Very Low		
21 51	J.ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		<u></u>

% Swell	NV
	L
Notes:	

pH and Resistivity		
pH Reading:	NA.	
Resistivity (ohms-cm)	NA	

Symbol: Cb-Mb

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max, Dry Density	N Y	
Corr.,Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	99		Ţ
#10	99		
#40	95		
#100	87		
#200	76		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185048 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B6 (8-10')	Submitted By:	

AASHTÓ T89/T90			
Plasticity Index			
Liquid Limit	37		
Plastic Limit	20		
Plasticity Index	17		

Percent Swell of Soil

NV

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		
> 130	Very High		

pH and Resisti	vity	
pH Reading.	NA.	
Resistivity (ohms-cm)	NA	1

Class: Lean clay with sand. Symbol: Cb

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

% Swell

Notes:

	AASHIOT	11 <i>0</i> F27	
Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	99		
#10	98		
#40	95		
#100	87		
#200	77		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185049 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B7(0-3')	Submitted By:	

AASHTC) T%9/T00
Plastici	ty Index
Liquid Limit	23
Plastic Limit	13
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 51	J,ow	
52,90	Medium	
91 - 130.	High	
> 130	Very High	

Expans	ion Index
EI =	NA
·····	

Percen	t Swell of Soil	**************************************
% Swell	NV	
Notes:		pH Read Resistivi
		Class: Sand
		Symbol: Cb

pH and Resistivity	
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max, Dry Density	ŊΥ
Corr.,Opt, Moisture %	NV
% Rock	3.

Remarks:

	AASHIDT	147427	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		1
#4.	97		
#10	9.3		
#40	79		
#100	66		
#200	54		

Reviewed By:

^{* -} out of specification



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX-Lab No::	185050 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drentli
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B8 (0-3')	Submitted By:.	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	25
Plastic Limit	14.
	·····
Plasticity Index	11

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

	ı
% Swell	NV
Notes:	

pH and I	Resistivity
pH Reading.	NA
Resistivity (ohms-c	m) NA

Moisture Density (Proctor)		
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊV	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

Sieve	% Pass	Specs.	*
1"	100		
1/2"	100		1
#4.	99		
#10	98		
#40	89		
#100	75		
#200	65		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLDP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185051 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B8 (5-7')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
Liquid Limit	24	
Plastic Limit	15:	
Plasticity Index	9	

Expansion Index, (EI)	Potential Expansion	Expans	on Ind
0 - 20	Very Low		
21 - 51	J,ow		1
52,90	Medium	E3 =	NA
91 - 130.	High		1
> 130	Very High		

% Swell Notes:	NV

pH and Resistivity	
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	ø	

^{* -} out of specification

	AASHIOT	11 <i>7</i> 727	
Sieve	% Pass	Specs.	*
1,"	100		
1/27	100		
#4.	100		1
#10	98		
#40	92		
#100	80		
#200	66		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Ceismon, LLEP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185052 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B9 (0-3')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
	·····	
Liquid Limit	24	
Plastic Limit	15	
Plasticity Index	9	
Plasticity Index	9	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	J,ow
52,90	Medium
9Î - 130.	High
> 130	Very High

Expans	ion Bidex	
EI =	NA	
L		

% Swell	NV
Notes:	L
NOJEŞ.	

pH and Resis	livity
рН Кеабиц;	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr.,Opt, Moisture %	NV	
% Rock	1.	

^{* -} out of specification

	AASHIOT	11 <i>7</i> 727	
Sieve	% Pass	Specs.	*
1,"	100		
1/27	100		
#4.	99		1
#10	96		
#40	77		
#100	58		
#200	.39		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cdsmon, LLUP	ProTeX Job No.	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185053 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B9 (5-7')	Submitted By:	

AASHT?) T%9/T90	
Plasticity Index		
Liquid Limit	-30	
Plastic Limit	16	
Plasticity Index	14	

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow		
52,90	Medium	EI =	NA
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	

pH and Resist	vity
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ΝV	
Corr. Opt. Moisture %	NV	
% Rock	2	

^{* -} out of specification

AASHIO TI17727			
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	98		
#10	91		
#40	69		
#100	52.		
#200	43		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185054 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B10 (0-3')	Submitted By:	

AASHTC	T89/T90	
Plasticity Index		
Liquid Limit	27	
Plastic Limit	14.	
Plasticity Index	13	

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		Ĭ
52,90	Medium	E¥ =	NA
91 - 130.	High		
> 130	Very High		

	······
% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading.	NA.	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)	
Max. Dry Density.	ŃV:
Opt. Moisture %	NV
Corr. Max, Dry Density	N Y
Corr. Opt, Moisture %	NV
% Rock	27

* - out of specification

	AASHIOT	11/T27	
Sieve	% Pass	Specs.	*
1''	100		T
1/2"	39		
#4.	73		
#10	6.3		
#40	47		
#100	37		
#200	3,1,		

Remarks:

Symbol: GC

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLTP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185055 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B11 (0-3')	Submitted By:	

AASHTO) T89/T90	
Plasticity Index		
Liquid Limit	25	
Plastic Limit	15	
Plasticity Index	10	

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		1
52,90	Medium	E3 =	NA
91 - 130	High		
> 130	Very High		

	
% Swell	NV
Notes:	

pH and Resisti	vity
рН Кеабиц.	ŊĄ
Resistivity (ohms-cm)	NĄ

Moisture Density	(Proctor)	
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max, Dry Density	N Y	
Corr.,Opt, Moisture %	NV	
% Rock	5,	

^{* -} out of specification

	AASHIOT	11 <i>0</i> F27	
Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	95		1
#10	92		
#40	83		
#100	72.		
#200	60		

Remarks:

Symbol: Cb

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLDP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185056 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B11 (5:7')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
Liquid Limit	35	
Plastic Limit	17	
Plasticity Index	18	

Expansion Index, (EI)	Potential Expansion	Expans	on Ind
0 - 20	Very Low		
21 - 51	J,ow		1
52,90	Medium	E3 =	NA
91 - 130.	High		1
> 130	Very High		

% Swell	NV
	L
Notes:	

pH and Resisti	vity
pH Reading:	NA.
Resistivity (ohms-cm)	NA

Symbol: Cb

Moisture Density (Proctor)		
Max. Dry Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr.,Opt, Moisture %	NV	
% Rock	2	

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Spees.	*
1''	100		
1/2"	100		
#4.	98		
#10	96		
#40	90		
#100	83		
#200	72		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLTP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185057 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B12 (0-3')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
Liquid Limit	NV	
Plastic Limit	NP	
Plasticity Index	NP	

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	$\mathbf{E}\mathbf{i} =$	NA
91 - 130.	High		1
> 130	Very High	L	

nt Swell of Soil
NV
::!:

	vity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NĄ
ass: Silty-sand	

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	5	

* - out of specification

	T T		
Sieve	% Pass	Spees.	*
1''	100		T
1/27	100		
#4.	95		
#10	92		
#40	78		
#100	55		
#200	39		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLTP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185058 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B13 (0-3')	Submitted By:	

AASHTO	T89/T00
Plastici	ty Index
Liquid Limit	23
Plastic Limit	14.
Plasticity Index	9.

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52, - 90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	<u> </u>

pH and Resi	stivity
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Max. Dry Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	.NV	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

	AASHIOT	11/T27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	99		T
#10	96		
#40	82		
#100	65		
#200	52		

Remarks:

Reviewed By:



ProTeX the PT Xperts LLC 1102 W. Southern Ave., Sre. 4. Office: (602)-272-7891

Fax: (602) 272-7892 Tempes, AZ 85282.

Soils Summary

PPGN-Crismon, LLDP Client: ProTeX Job Not. 8144 Cadence ProTeX Lab No.: 185059 - Phoenix Project Name: Date Received: 8/1/2018 Phases 2 and 3 Job Name: Sampled By: Spencer Drenth Geo Samples - Native (On-Site) Material: Material Supplier: Date Sampled: 7/30/2018; Sample Location: B13 (6-8') Submitted By:

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	25
Plastic Limit	15:
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		ľ
52,90	Medium	EI =	NA
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading.	ŅĄ	
Resistivity (ohms-cm)	NĄ	

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

AASHIO TI17F27			
Sieve	% Pass	Spees.	*
1"	100		
1/2*	100		
#4.	99		1
#10	98		
#40	90		
#100	74		
#200	61,		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX-Lab No::	185060 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B14 (0-3')	Submitted By:.	

Plasticity Index		
19.		
13		
6		

Expansion Index, (EI)	Potential Expansion	Expans	ion Inde
0 - 20	Very Low		
21 - 51	J,ow		ľ
52, - 90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

	······
% Swell	NV
Notes:	

ŅĄ
NĄ

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

^{* -} out of specification

Sieve	% Pass	Specs.	*
1"	100		
1/2"	100		1
#4.	99		1
#10	98		
#40	84		T
#100	68		
#200	55		

Remarks:

Reviewed By:



Tempes, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No:	8144
Project Name:	Cadence	ProTeX-Lab No::	185061 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B14 (10-12')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	25
Plastic Limit	17
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ion Inde
0 - 20	Very Low		
21 - 51	J.ow		ľ
52,90	Medium	E3 =	NA
91 - 130.	High		
> 130	Very High		<u></u>

	r
% Swell	NV
Notes:	L

pH and Resistivity	
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)	
Max. Dry Density.	ŃV
Opt. Moisture %	NV
Corr. Max, Dry Density	.NV
Corr. Opt, Moisture %	NV
% Rock	2

* - out of specification

Sieve	% Pass	Specs.	*
1"	100	<u> </u>	
1/2"	100	······	
#4.	98		
#10	94		
#40	81		
#100	60		
#200	46		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLDP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185062 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B15 (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	29.
Plastic Limit	14.
Plasticity Index	15

Expansion Index, (EI)	Potential Expansion	Expans	ını İnde
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	E3 =	NA
91 - 130	High		1
> 130	Very High	L	

% Swell	NV
Notes:	l

pH and Resis	stivity
pH Reading:	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
Opt. Moisture %	NV
Corr. Max, Dry Density	N Y
Corr.,Opt, Moisture %	NV
% Rock	2

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Specs.	*
1''	100		
1/27	99		
#4.	98		
#10	96		
#40	87		
#100	72.		
#200	59		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLDP	PreTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185063 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B16 (0-3')	Submitted By:	

AASHTO T89/T90		
Plasticity Index		
Liquid Limit	23	
Plastic Limit	13	
Plasticity Index	10	

Expansion Index, (EI)	Potential Expansion	Expans	ıcıı İnd
0 - 20	Very Low		
21 - 51	J,ow		1
52,90	Medium	E3 =	NA
91 - 130.	High		1
> 130	Very High	L	

% Swell	NV
Notes:	

pH and Resisti	vity
pH Reading	ŅĄ
Resistivity (ohms-cm)	NĄ
ass: Sandy lean clay	
ool: Cb	

Moisture Density (Proctor)		
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊV	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

	AASHIOT	11 <i>0</i> F27	
Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	99		
#10	98		
#40	82		
#100	67		
#200	58		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job No.	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185064 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:		Date Sampled:	7/30/2018]
Sample Location:	B16 (4-6')	Submitted By:.	

AASHTO T89/T90		
Plasticity Index		
Liquid Limit	.33	
Plastic Limit	17	
Plasticity Index	16	

Expansion Index, (EI)	Potential Expansion	Expans	ıcın İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High	L	

% Swell	NV
Notes:	L
INOSCĄ.	

pH and Resistivity		
pH Reading.	NA	
Resistivity (ohms-cm)	NA	

Symbol: Cb

Moisture Density	(Proctor)
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max. Dry Density	ŊΥ
Corr. Opt. Moisture %	NV
% Rock	0

* - out of specification

	AASHIOT	11 <i>0</i> F27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		
#10	99		
#40	93		
#100	85		
#200	74		

Remarks:

Reviewed By:



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX-Lab No::	185065 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B17 (0-3")	Submitted By:	

39/T90
Index
20
15
<u>5</u>

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 51	J,ow		Ĭ
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	<u> </u>

pH and Resi	stivity
pH Reading.	NA
Resistivity (ohms-cm)	NA

Moisture Density	(Proctor)
Max. Dry Density.	ŃV
Opt. Moisture %	NV
Corr. Max, Dry Density	.NV
Corr. Opt, Moisture %	NV
% Rock	1.

* - out of specification

Sieve	% Pass	Specs.	*
1"	100	1.F. 4.4%	
1/2*	100,		
#4.	99		
#10	94		
#40	65		
#100	51		
#200	39		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185066 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B18 (0-3')	Submitted By:.	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	14.
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	$\mathbf{E}\mathbf{i} =$	NA
91 - 130.	High		1
> 130	Very High	L	

% Swell	NV
Notes:	L

pH and Resisti	vity
рН Кеабид:	NA.
Resistivity (ohms-cm)	NA
ass: Clayev sand,	

Moisture Density	(Proctor)
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max, Dry Density	ŊΥ
Corr. Opt. Moisture %	NV
% Rock	1.

* - out of specification

	AASHIOT	117137	
Sieve	% Pass	Specs.	*
1''	100		1
1/2*	100		
#4.	99		
#10	95		
#40	74.		
#100	58		
#200	-3.7		

Remarks:

Reviewed By: Jetald W Grossarth



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185067 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018
Sample Location:	B18 (6-8')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	35
Plastic Limit	15
Plasticity Index	20

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	E3 =	NA
91 - 130.	High		•
> 130	Very High		

% Swell	NV
Notes:	

pH and Resi	stivity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	NV	

* - out of specification

	AASHIOT	117T27	
Sieve	% Pass	Specs.	*
1''	100		1
1/2*	100		
#4.	100		
#10	99		
#40	91		
#100	81		
#200	69		

Remarks:

Reviewed By:



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185068 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018
Sample Location:	B19 (0-3')	Submitted By:	

AASHT?	T89/T90		
Plasticity Index			
Liquid Limit	22		
Plastic Limit	15		
Plasticity Index	7-		

Expansion Index, (EI)	Potential Expansion	Expans	ıcın Bıck
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	E3 =	31
91 - 130	High		
> 130	Very High		<u></u>

% Swell	NV
Notes:	

pH and Resistivity		
pH Reading.	NA	
Resistivity (ohms-cm)	NĄ	

Symbol: Cb-Mb

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt. Moisture %	NV	
% Rock	1.	

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Spees.	*
1''	100		
1/2"	100		
#4.	99		
#10	98		
#40	92		
#100	80		
#200	66		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX-Lab No::	185069 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B20 (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	28
Plastic Limit	14.
Plasticaty Index	14

Expansion Index, (EI)	Potential Expansion	Expans	ion Bide
0 - 20	Very Low		
2151	J,ow		ľ
52,90	Medium	EI =	NA
91 - 130	High		į.
> 130	Very High		

% Swell	NV
Notes:	
110500.	

pH and Resis	tivity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	NV:	

* - out of specification

	AASHIDT	11 <i>7</i> 727	
Sieve	% Pass	Specs.	*
1,"	100		
1/27	100		
#4.	100		
#10	99		
#40	88		
#100	79		
#200	70		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLEP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185070 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B20 (5-7')	Submitted By:	

AASHTO T89/T90				
Plasticity Index				
Liquid Limit	-32			
Plastic Limit	14.			
Plasticity Index	18			

Expansion Index, (EI)	Potential Expansion	Expans	ıcın Bıck
0 - 20	Very Low		
21 - 51	J,ow	- 1	1
52,90	Medium	E3 =	NA
91 - 130.	High	- 1	
> 130	Very High		

% Swell Notes:	NV

pH and Resisti	vity
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Symbol: Cb

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr.,Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

Remarks:

Sieve	% Pass	Specs.	*
1"	100	1.F. 4 444	+
1/2*	100,	•••••	
#4.	99		
#10	98		
#40	94.		
#100	87		
#200	79		

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cdsmon, LLUP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185071 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B21 (0-3')	Submitted By:	

AASHTO) 78 5/790
Plastici	ty Index
Liquid Limit	24
Plastic Limit	14.
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 51	J,ow
52,90	Medium
91 - 130.	High
> 130	Very High

Expans	ion Bidex	
EI =	NA	
		لـ

% Swell Notes:	NV

pH and Resistivity	
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
MaxDry.Density.	ŇV:
Opt. Moisture %	NV
Corr. Max. Dry Density	NV.
Corr. Opt. Moisture %	NV
% Rock	0

* - out of specification

Sieve	% Pass	Specs.	*
1"	100		
1/2"	100		1
#4.	100		Ţ
#10	99		
#40	89		
#100	?¥		
#200	69		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185072 - Phoerix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B22 (0-3')	Submitted By:	

T%9/T@0
Index
23
15
8

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 51	J,ow		Ĭ
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading.	NA.	
Resistivity (ohms-cm)	NA	

Symbol: Cb

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

	AASHIOT	11/T27	
Sieve	% Pass	Specs.	*
1''	100		T
1/2"	99		
#4.	99		
#10	98		
#40	91		
#100	81		
#200	71		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX-Lab No::	185074 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B23 (0-3')	Submitted By:	

AASHTO	T89/T90		
Plasticity Index			
Liquid Limit	NV		
Plastic Limit	ŃΡ		
Plasticity Index	NP		
	L		

Expansion Index, (EI)	Potential Expansion	Expans	aon Inde
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	$\mathbf{E}\mathbf{i} =$	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
	74 A
Notes:	

pH and Resistivity			
рН]	Reading:	<u>NA</u>	
Resi	istivity (ohms-cm)	NA	

Moisture Density	(Proctor)
MaxDry.Density.	ŇV:
Opt. Moisture %	NV
Corr. Max. Dry Density	.%Y
Corr. Opt, Moisture %	NV
% Rock	1.

* - out of specification

	AASHUUT	4. € 6. € 4. 3	
Sieve	% Pass	Specs.	*
1"	100		1
1/2*	100		1
#4.	99	•••••	
#10	89		
#40	43		
#100	20,		
#200	15		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX Lab No::	185075 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B24 (0-3')	Submitted By:	

AASHTO) 78 9/ 7 90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	14.
Plasticity Index	8

Expansion Index, (EI) Potential Expansion		Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		ľ
52,90	Medium	EI =	NA
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading.	ŅĄ	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)		
Max. Dry Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr.,Opt, Moisture %	NV	
% Rock	NV	

* - out of specification

Sieve	% Pass	Specs.	*
1''	100	<u> </u>	+
1/2*	100		
#4.	100	***************************************	
#10	99		
#40	90		
#100	75		
#200	61,		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No:	8144
Project Name:	Cadence	ProTeX Lab No::	185076 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B24 (6-8')	Submitted By:	

AASHTA T89/T90				
Plasticity Index				
Liquid Limit	-30			
Plastic Limit	17			
Plasticity Index	13			

Expansion Index, (EI)	Potential Expansion	Expans	ıcıı İsc
0 - 20	Very Low		
21 - 5Î	J.ow		
52,90	Medium	EI =	26
91 - 130.	High		
> 130	Very High	L	

% Swell	NV
Notes:	

pH and Resistivity		
pH Reading.	,NA	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr.,Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

Remarks:

Sieve	% Pass	Specs.	*
1"	100		
1/2"	100		1
#4.	99		1
#10	97		
#40	91		T
#100	80		
#200	68		

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX-Lab No::	185077 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B25 (0-3')	Submitted By:.	

AASHTC) T89/T90
Plastici	ty Index
Liquid Limit	23
Plastic Limit	13
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52, - 90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resisti	vity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NĄ
ass: Sandy lean clay	

Moisture Density	(Proctor)
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max, Dry Density	ŊΥ
Corr.,Opt, Moisture %	NV
% Rock	2

* - out of specification

AASHID T117F27			
Sieve	% Pass	Spees.	*
1,"	100		
1/2*	99		
#4.	98	•••••	
#10	96		
#40	81		
#100	65		
#200	52		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLDP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX/Lab No::	185078 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B26 (0-3')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	24
Plastic Limit	14.
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell Notes:	NV

pH and Resisti	vity
pH Reading:	ŅĄ
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
MaxDry.Density.	ŇV:
Opt. Moisture %	NV
Corr. Max. Dry Density	NV.
Corr. Opt. Moisture %	NV
% Rock	0

^{* -} out of specification

Sieve	% Pass	Specs.	*
1''	100		
1/27	100		
#4.	1,00		
#10	98		
#40	91		T
#100	81		
#200	71		

Remarks:

Symbol: Cb

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLDP	ProTeX Job No.	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185079 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:		Date Sampled:	7/30/2018]
Sample Location:	B26 (6-8')	Submitted By:	

AASHTO) T89/T90	
Plasticity Index		
Liquid Limit	25	
Plastic Limit	15	
Plasticity Index	10	

Expansion Index, (EI)	Potential Expansion	Expans	ion In
0 - 20	Very Low		
21 - 51	J.ow		
52,90	Medium	E₹≒	26
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	
Notes:	

pH and Resistivity		
рН Кеабид.	NA	
Resistivity (ohms-cm)	NA	

Symbol: Cb

Moisture Density (Proctor)	
Max. Dry Density.	ŇV:
Opt. Moisture %	NV
Corr. Max. Dry Density	ŊΥ
Corr. Opt, Moisture %	NV
% Rock	NV:

* - out of specification

c.	I or Dec. I		*
Sieve	% Pass	Specs.	٠,٠
1"	100		
1/2"	100		
#4.	1,00		1
#10	99		
#40	94.		
#100	83		
#200	71		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	PreTeX Job No:	8]44
Project Name:	Cadence	ProTeX-Lab No::	185080 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B27 (0-3')	Submitted By:	

AASHT≙ T89/T90			
Plasticity Index			
Liquid Limit	23		
Plastic Limit	13		
Plasticaty Index	10		

Expansion Index, (EI)	Potential Expansion	Expans	an Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell Notes:	NV

pH and Resi	stivity
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	0	

* - out of specification

	AASHIOT	11 <i>0</i> F27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		1
#10	98		
#40	88		
#100	75		
#200	63		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLEP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX Lab No::	185082 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B28 (0-3')	Submitted By:	

AASHTO T89/T90		
Plastici	ty Index	
Liquid Limit	24	
Plastic Limit	16	
Plasticity Index	8	

Expansion Index, (EI)	Potential Expansion	Expans	ıcın Bıck
0 - 20	Very Low		
21 - 51	J,ow	- 1	1
52,90	Medium	E3 =	NA
91 - 130.	High	1	
> 130	Very High		

% Swell	NV
Notes:	
Notes:	

pH and Resistivity		
pH Reading:	NA	
Resistivity (ohms-cm)	NA	

Symbol: Cb

Moisture Density (Proctor)	
Opt. Moisture %	NV
Corr. Max. Dry Density	ŊΥ
Corr. Opt, Moisture %	NV
% Rock	1.

* - out of specification

Remarks:

	AASHIDT	11/T27	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		1
#4.	99	•••••	
#10	99		
#40	94.		
#100	84		
#200	73		

Reviewed By:



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cesmon, LLEP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185081 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B28 (6-8')	Submitted By:	

AASHTO) T%9/T90
Plastici	ty Index
Liquid Limit	25
Plastic Limit	18
Plasticity Index	7.

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

A** C11*	3-37
% Swell	NV
Notes:	

pH and Resisti	vity
pH Reading:	NA
Resistivity (ohms-cm)	NA

Symbol: Cb-Mb

Moisture Density (Proctor)		
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max, Dry Density	.NV	
Corr. Opt. Moisture %	NV	
% Rock	1.	

* - out of specification

Remarks:

	AASHIOT	H/T27	
Sieve	% Pass	Specs.	*
1''	100		1
1/2*	100		
#4.	99		
#10	96		
#40	90		
#100	84		
#200	76		

Reviewed By:



Tempe, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLDP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185083 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B29 (0-3')	Submitted By:	

AASHTO) T89/T90	
Plasticity Index		
Liquid Limit	25	
Plastic Limit	14.	
Plasticity Index	11	

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	J,ow
52,-90	Medium
91 - 130.	High
> 130	Very High

Expans	ion Index	
E¥ =	NA	

Percent Swell of Soil		
% Swell Notes:	NV	

pH and Resisti	vity
pH Reading.	NA.
—	

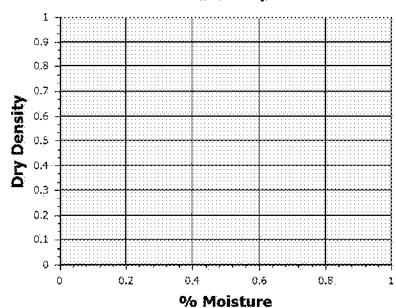
Class: Lean clay with sand. Symbol: Cb

AASHTO T272		
Moisture Density	(Proctor)	
Max. Dry Density.	111.3	
Opt. Moisture %	16.1	
Corr. Max, Dry Density	111.4	
Corr.,Opt, Moisture %	16,1	
% Rock	0	

^{* -} out of specification

Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	1,00		
#10	99		
#40	96		
#100	89		
#200	89		

Moisture Vs. Density



Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185084 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B30 (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	23
Plastic Limit	15:
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	

pH and Resistivity	
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	NV:	

* - out of specification

AASHIO TI17F27				
Sieve	% Pass	Specs.	*	
1''	100			
1/2"	100			
#4.	100			
#10	100			
#40	95			
#100	85			
#200	73			

Remarks:

Reviewed By:



Tempes, AZ 85282.

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185086 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	B31 (0-3')	Submitted By:	

AASHT) T89/T90
Plastic	ity Index
Liquid Limit	20
Plastic Limit	14.
Plasticity Index	6

Expansion Index, (EI)	Potential Expansion	
0 - 20	Very Low	
21 - 51	J,ow	
52,90	Medium	
91 - 130.	High	
> 130	Very High	

Expans	ion Bidex	
EI =	NA	
L		٦

Percent S	well of Soil	s.I
% Swell	NV	<u></u>
Notes:		pH Reading Resistivity (
		Class: Silty clay
		Symbol: CtMl.

pH and Resistivity				
pH Reading.	NA.			
Resistivity (ohms-cm)	NĄ			

Moisture Density (Proctor)			
Max. Dry Density.	ŇV:		
Opt. Moisture %	NV		
Corr. Max, Dry Density	ŊΥ		
Corr. Opt, Moisture %	NV		
% Rock	0		

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		
#10	99		
#40	93		
#100	84		
#200	72		

Remarks:

Reviewed By:



1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892; Tempe, AZ 85282

Symbol: SC-SM:

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185087 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	B33 (0-3')	Submitted By:	

AASHTC	T89/T90
Plastici	ty Index
Liquid Limit	19.
Plastic Limit	14.
Plasticity Index	5

Expansion Index, (EI)	Potential Expansion	Expans	an Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell	NV
Notes:	

pH and Resistivity	
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
Max. Dry Density.	NV:
Opt. Moisture %	NV
Corr. Max, Dry Density	NV.
Corr. Opt. Moisture %	NV
% Rock	7.

* - out of specification

	AASHIDT	11 <i>7</i> 727	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	96		
#4.	93		
#10	90		
#40	74.		
#100	53		
#200	40		

Reviewed By:

Jetald W Grossarth

Remarks:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLTP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185088 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	B34 (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	14.
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ıcın Bıck
0 - 20	Very Low		
21 - 51	J,ow	- 1	
52,90	Medium	E3 =	NA
91 - 130.	High	- 1	1
> 130	Very High		

% Swell	NV
	L
Notes:	

pH and Resis	stivity
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
Max. Dry.Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŅΥ	
Corr. Opt, Moisture %	NV	
% Rock	NV	

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Specs.	*
1,"	100		
1/2*	100		
#4.	100		
#10	99		
#40	91		
#100	82		
#200	70		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No:	8144
Project Name:	Cadence	ProTeX-Lab No::	185089 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:		Date Sampled:	7/30/2018]
Sample Location:	B34 (5-7')	Submitted By:	

AASHTC	T89/T90
Plastici	ty Index
Liquid Limit	19.
Plastic Limit	15
Plasticity Index	4

Expansion Index, (EI)	Potential Expansion	Expans	on Index
0 - 20	Very Low		
2151	J,ow		ľ
52,90	Medium	$\mathbf{E}\mathbf{i} =$	12.
91 - 130.	High		1
> 130	Very High	L	

NV

pH and Resisti	vity
pH Reading:	ŊĄ
Resistivity (ohms-cm)	NA

Symbol: Cb-Mb

Moisture Density (Proctor)		
MaxDry.Density.	ŃΫ	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	5	

* - out of specification

	AASHIOT	11 <i>7</i> T23	
Sieve	% Pass	Spees.	*
1,"	100		
1/2"	98		
#4.	95		
#10	92		
#40	80		
#100	63		
#200	52		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Casmon, LLLP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185090 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	BC1 (9-3')	Submitted By:.	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	24
Plastic Limit	14.
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow		1
52,90	Medium	E3 =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resistivity		
pH Reading.	NA.	
Resistivity (ohms-cm)	NA	

Moisture Density (Proctor)		
Max. Dry Density.	ŃV	
Opt. Moisture %	NV	
Corr. Max, Dry Density	.NV	
Corr. Opt, Moisture %	NV	
% Rock	NV	

* - out of specification

	AASHIOT	117127	
Sieve	% Pass	Specs.	*
1''	100		1
1/2*	100		
#4.	100		
#10	100		
#40	97		
#100	90,		
#200	78		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cesmon, LLEP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185091 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	BC2 (9-3')	Submitted By:	

AASHTÓ T89/T90				
Plasticity Index				
Liquid Limit	21			
Plastic Limit	14.			
Plasticity Index	7.			

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		ľ
52,90	Medium	EI =	NA
91 - 130.	High		
> 130	Very High		

A∀ 0 — 11°	27.7
% Swell	NV
Notes:	

	ivity
H Reading.	NA
esistivity (ohms-cm)	NĄ
ss: Sandy silty clay	
88: Sandy-silty clay Ol: Ol-Mb	

Moisture Density (Proctor)		
Max. Dry Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV	
Corr. Opt. Moisture %	NV	
% Rock	0	

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	100		
#10	99		
#40	89		
#100	77		
#200	64		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185092 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	BC3 (9-3')	Submitted By:	

AASHTO	T89/T00
Plastici	ty Index
Liquid Limit	23
Plastic Limit	14.
Plasticity Index	9.

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130.	High		1
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resis	stivity
pH Reading:	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)		
MaxDry.Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max. Dry Density	NV.	
Corr. Opt. Moisture %	NV	
% Rock	0	

* - out of specification

	AASHUUT		
Sieve	% Pass	Spees.	*
1"	100		
1/2"	100		
#4.	1,00		
#10	98		
#40	86		
#100	69		
#200	54		

Remarks:

Reviewed By:



Tempes, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185093 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	BC4 (9-3')	Submitted By:	

AASHTO) 78 5/790		
Plasticity Index			
	·····		
Liquid Limit	NV		
Plastic Limit	ΝP		
Plasticity Index	NP		

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow	- 1	1
52,90	Medium	E3 =	NA
91 - 130.	High		1
> 130	Very High		

% Swell Notes:	NV

	pH and Resisti	vity
рΗ	Reading:	NA.
Res	istivity (ohms-cm)	NA

Moisture Density (Proctor)		
Max. Dry Density.	ŇV:	
Opt. Moisture %	NV	
Corr. Max. Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	1.	

^{* -} out of specification

Sieve	% Pass	Specs.	*
1"	100	<u> </u>	
1/2*	100		
#4.	99	***************************************	
#10	9.5		
#40	65		
#100	45		
#200	36		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185094 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	BC5 (9-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	24
Plastic Limit	15:
Plasticity Index	9

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell	NV
Notes:	

pH and Resistivity	
pH Reading:	NA
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)	
Max. Dry Density.	ŃV:
Opt. Moisture %	NV
Corr. Max, Dry Density	.NV
Corr. Opt, Moisture %	NV
% Rock	1.

* - out of specification

	AASHIOT	11 <i>1</i> 727	
Sieve	% Pass	Spees.	*
1''	100		
1/2"	100		
#4.	99		1
#10	98		
#40	90		
#100	81		
#200	70		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No:	8]44
Project Name:	Сяденсе	ProTeX-Lab No::	185095 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	BC6 (9-3')	Submitted By:	

AASHT	T89/T90
Plastici	ity Index
Liquid, Limit	-30
Plastic Limit	16
Plasticity Index	14

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		<u> </u>
52,90	Medium	E3 =	NA
91 - 130	High		
> 130	Very High		

% Swell	NV
Notes:	L

pH and Resisti	vity
pH Reading.	NA.
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)		
MaxDry.Density.	ŃV:	
Opt. Moisture %	NV	
Corr. Max, Dry Density	ŊΥ	
Corr. Opt, Moisture %	NV	
% Rock	NV:	

^{* -} out of specification

AASHUUTI1/T27			
Sieve	% Pass	Specs.	*
1,"	100		
1/2"	100		
#4.	100		
#10	100		
#40	98		
#100	94		
#200	85		

Remarks:

Reviewed By:



ProTeX the PT Xperts LLC 1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891

Tempe, AZ 85282

Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Casmon, LLUP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185096 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018
Sample Location:	BC7·(9-3')	Submitted By:	

AASHTÓ T89/T90		
Plasticity Index		
Liquid Limit	21	
Plastic Limit	14.	
Plasticity Index	7-	

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow		
52,90	Medium	EI =	NA
91 - 130.	High		1
> 130	Very High	L	

% Swell	NV
Notes:	

pH and Resistivity		
pH Reading:	NA.	
Resistivity (ohms-cm)	NĄ	

Symbol: SC-SM

Moisture Density (Proctor)		
Opt. Moisture %	NV	
Corr. Max, Dry Density	.NV	
Corr. Opt, Moisture %	NV	
% Rock	1.	

* - out of specification

Remarks:

Sieve	% Pass	Specs.	*
1''	100		
1/2*	100		
#4.	99		Ţ
#10	96		
#40	76		
#100	59		
#200	47		

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No:	8 44
Project Name:	Сяденсе	ProTeX Lab No::	185097 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8(1/2018)
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	BC8 (9-3')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	13
Plasticaty Index	9

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell	NV
Notes:	

pH and Resis	tivity
pH Reading.	NA
Resistivity (ohms-cm)	NĄ

Moisture Density	(Proctor)		
Max. Dry Density.	ŇV:		
Opt. Moisture %	NV		
Corr. Max, Dry Density	ŊΥ		
Corr.,Opt, Moisture %	NV		
% Rock	1.		

^{* -} out of specification

Sieve	% Pass	Specs.	*
1''	100		
1/2"	100		
#4.	99		
#10	96		<u> </u>
#40	77		
#100	62,		
#200	.39		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Crismon, LLUP	ProTeX Job No:	8]44
Project Name:	Cadence	ProTeX-Lab No::	185098 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drenth
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	BC9'(0-3')	Submitted By:	

AASHTO	T89/T90
Plastici	ty Index
Liquid Limit	22
Plastic Limit	14.
Plasticity Index	8

Expansion Index, (EI)	Potential Expansion	Expans	ion Bid
0 - 20	Very Low		
21 - 51	J,ow		1
52,90	Medium	EI =	NA
91 - 130.	High		1
> 130	Very High		

% Swell	NV
Notes:	L
1 10 50g.	

pH and Resis	tivity
pH Reading.	NA.
Resistivity (ohms-cm)	NA

Moisture Density (Proctor)	
MaxDry.Density.	ŃV:
Opt. Moisture %	NV
Corr. Max. Dry Density	ŊΥ
Corr. Opt. Moisture %	NV
% Rock	NV:

^{* -} out of specification

AASHID TI17727			
Sieve	% Pass	Specs.	*
1,"	100		
1/27	100		
#4.	100		1
#10	99		
#40	91		
#100	79		
#200	66		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Crismon, LLLP	ProTeX Job No.	8 44
Project Name:	Cadence	ProTeX-Lab No::	185099 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled:	7/30/2018]
Sample Location:	BC10 (0-3')	Submitted By:	

AASHTO) T%9/T00
Plastici	ty Index
	·····
Liquid Limit	26
Plastic Limit	14.
Plasticity Index	12

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J.ow		ľ
52,90	Medium	E3 =	NA
91 - 130.	High		
> 130	Very High		

% Swell	NV
	L
Notes:	

pH and Resistivity	
рН Кеабид.	NA
Resistivity (ohms-cm)	NA

Symbol: Cb

Moisture Density	(Proctor)
Max. Dry Density.	ŃΫ
Opt. Moisture %	NV
Corr. Max, Dry Density	.NV
Corr.,Opt, Moisture %	NV
% Rock	2

* - out of specification

Sieve	% Pass	Specs.	*
1''	100		
1/2*	100		
#4.	98		Ţ
#10	98		
#40	93		
#100	83		
#200	72		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job No.	8]44
Project Name:	Cadence	ProTeX Lab No::	185100 - Phoenix
Job Name:	Phases 2 and 3	Date Received	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampledi:	7/30/2018]
Sample Location:	BCH (0-3')	Submitted By:	

AASHTO) T89/T90
Plastici	ty Index
Liquid Limit	25
Plastic Limit	15
Plasticity Index	10

Expansion Index, (EI)	Potential Expansion	Expans	ion Ind
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	E3 =	NA
91 - 130	High		
> 130	Very High	L	

% Swell	NV
Notes:	

pH Reading: NA	pH and Resistivity	
T	H Reading:	NA
Resistivity (ohms-cm) Na	esistivity (ohms-cm)	NĄ

Moisture Density (Proctor)					
Max. Dry Density.	NV:				
Opt. Moisture %	NV				
Corr. Max, Dry Density	.NV				
Corr. Opt. Moisture %	NV				
% Rock	θ				

* - out of specification

Sieve	% Pass	Specs.	*
1"	100	1.F. 4.4W.	
1/2*	100	~~~~~~	
#4.	1,00	***************************************	1
#10	99		
#40	95		
#100	89		
#200	89		

Remarks:

Reviewed By:



Tempe, AZ 85282

1102 W. Southern Ave., Sre. 4 Office; (602)-272-7891 Fax: (602) 272-7892;

Soils Summary

Client:	PPGN-Cosmon, LLDP	ProTeX Job Not.	8]44
Project Name:	Cadence	ProTeX Lab No::	185101 - Phoenix
Job Name:	Phases 2 and 3	Date Received:	8/1/2018
Material:	Geo Samples - Native (On-Site)	Sampled By::	Spencer Drendi
Material Supplier:	-	Date Sampled::	7/30/2018]
Sample Location:	BC12 (0-3')	Submitted By:	

AASHTC) 78 5/790							
Plasticity Index								
Liquid Limit	22							
Plastic Limit	12							
Plasticity Index	10							

Expansion Index, (EI)	Potential Expansion	Expans	ını İnd
0 - 20	Very Low		
21 - 51	J,ow		
52,90	Medium	EI =	NA
91 - 130	High		1
> 130	Very High		

% Swell	NV
Notes:	l
110500.	

pH and Resis	tivity
pH Reading.	ŅĄ
Resistivity (ohms-cm)	NĄ

Moisture Density (Proctor)								
Max. Dry Density.	ŇV:							
Opt. Moisture %	NV							
Corr. Max. Dry Density	ŊΥ							
Corr. Opt, Moisture %	NV							
% Rock	3.							

^{* -} out of specification

	AASHIDT	11 <i>7</i> 727	
Sieve	% Pass	Specs.	*
1,"	100		
1/2*	99		
#4.	97		
#10	9.3		
#40	83		
#100	72.		
#200	64		

Remarks:

Reviewed By:

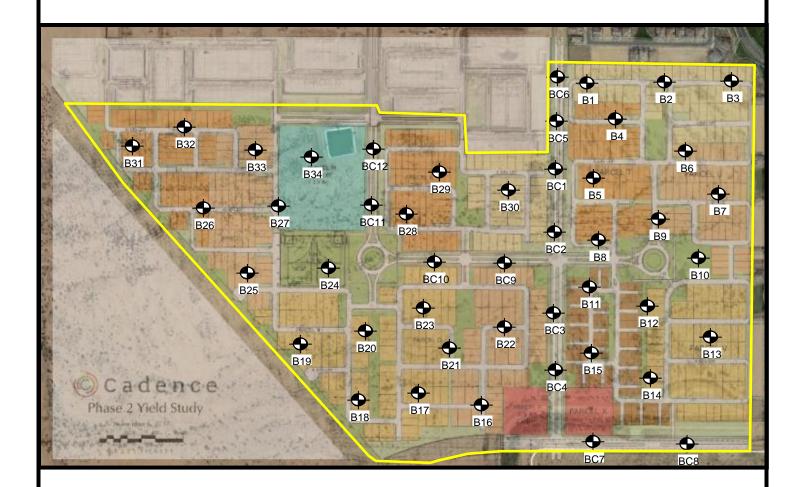


Summary of Laboratory Test Results Potential for Corrosion

Client PFGN-Crismon LLLP	Builder: PPGN-Crismoe, ELLP		
Job Name: Phases 2 and 3		Tob ID #. KL44	

ProTeX Lab?	T-occition	Depth	-Material Type	Sample Date	Sulfate (SO4) (ropm)	Chloride (CL) (ppm)	Saluble Šolts (ppm)	Mitoimten Resistivity (obtos-om)	ρŦ:	Oxidation- Reduction. Potential of Water (mV)
T85039	[3]	Ü-3″	Geo Stamples - Native	7/30/2018	255	16				
185052	:139	0-3'	Geo Samples - Narre	7/30/2(48	95	Ş				
185058.	B13	0:31	Geo Samples - Native	7/30/CQ18	98	6				
1\$5068	B17	0-31	Geo Samples - Native	7/30/20);\$	ŞR	1				
T85077	1525	0.3°	Geo Samples - Native	7/30/2/08	56	3				
185086	B31	0-31	Geo Samples - hative	7/30/2018	58	4				

Appendix B



Legend:



Approximate Test Hole Location



Site Plan

Scale: N.T.S. Drawn by: SD. Date: 8/21/2018

Cadence - Phases 2 and 3

Ellsworth Road and Guadalupe Road Mesa, Arizona



ProTeX Job No.: 8144

Appendix C

		PROJECT: Cadence Phases 2 and 3				_ F			814		
Ι,		CLIENT: PPGN-RAY, LLLP and PPGN-Crismo									
((Prole)	PROJECT LOCATION: Ellsworth Road and G	<u> adalupe Ro</u>	ad							
1	THE PT PEATS LLC.	LOCATION: See Site Map				_	ELEVATION: _				
م با	G OF BORING	DRILLER: D&S Drilling				_ L	LOGGED BY:		SD		
		BRILLING INCTIOD. 6 Tower Auger					DA			/2018	
	No. B1	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	1 HOL	JRS:	<u>¥</u>	CA	VING>	<u>c</u>		
			<u>.</u>	Φ	ι	8		ST RESI			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit		→ L	iquid I	Limit
ا ت ت		r	Ö	Sa	^m ပ	%	Water Content		~~ <u>~</u>		
0			_			\Box	Penetration -	30	40	50	J
	(CL) Sandy Clay, low-	-medium plasticity, slightly damp, light brow	n ///	8503	9	79	: :	1	:	:	
				1		'	<u> </u>				
$\vdash \vdash \vdash$			- Y///	1			F		.	.	
\vdash				1			<u> </u>				
\vdash			\///	1		'	ļ				
2.5				1			L				
Щ			\///	1			L		.	:.	
				1			L	:			
Γ			V///	1			[: :	:	:	:	
				1		'	T : : :	•			
5			V///	1			f:	:	:	:	
				8504	•	61		—		· · · · ·	
\vdash				┨		'					
$\vdash \vdash$				1			ļ				
Щ				1			ļi	;			
				1			L	:		:	
7.5]		'	l	:			
			\///	1		'		:			
]		'	· · · · · · · · · · · · · · · · · · ·	:		:	
			\///	1			Fi				
\vdash				1			<u> </u>				
$\vdash \vdash \vdash$			\///	1		'	ļi				
10				1			F				
\sqcup			Y///	1			ļi				
				1		'	L				
			\///	1			l <u>;</u>				
				1			Г : : : : : : : : : : : : : : : : : : :	:			
12.5			Y///	1							
				1		'	F			• • • • • • • • • • • • • • • • • • • •	
2.5			\///	1			<u> </u>	• • • • • • • • • • • • • • • • • • • •			
\vdash				1			<u> </u>			į.	
\vdash			\///	1		'	<u> </u>				
Щ				1			ļ <u>.</u>				
15				4			L				
	В	Boring terminated at 15 ft.					L				
						'		:			
							ļ	:		:	
							<u> </u>	!			
							<u> </u>				
17.5						'	F				
\vdash							ļ				
1 1						'	ļ				
_							I				

		PROJECT: Cadence Phases 2 and 3				F	PROJECT	NO.:		8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon									
(POLE POPER LLC.	PROJECT LOCATION: Ellsworth Road and Gu	adalupe Ro	oad							
		LOCATION: See Site Map				_	ELEVATIO				
LO	G OF BORING	DRILLER: D&S Drilling				_ [_OGGED I	_		SD	
	No. B2	DRILLING WILTHOD. 8 FOWER Auger	ACTED 2	4 1101	IDC.	_		DAT		7/27/2	2018
	NO. DZ	DEPTH TO - WATER> INITIAL: ¥	AFTER 2	4 HOU	JK5:	т —			VING>		
무유			hic	<u>e</u> .	۸ str	200	Plastic Lir		T RESU		quid Limit
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Water Co			— LIC	quia Limii
			٥	S		%	Penetration			7	
0			1///	18504	ļ	77	10	20	30	40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		10304	ĺ	l ′ ′	<u> </u>				
				1			<u>.</u>		.	.	.
				<u> </u>				: :		.	
				1	6					· · · · · · · · · · · · · · · · · · ·	•
2.5				1	6			:	:	:	:
				1				:		:	:
			1///	一	1			:			•
				1			F :			•	•
				1			:	:	:	:	:
_				7			<u>-</u>				:
5				+	6		7777			•	
				1	6 6			• • • • • •			•
				1			<i>////</i> //		· · · · · · · · · · · ·	· · · · · · · · · · · ·	
				 							
				1 18504		64	ļ	+	 i	·	
7.5				10304	Í	04	L				
				1			<u> </u>				
				1			<u></u>	:			
				1			L	:	.		.
				1				:	:		
10				1							:
				1				:			
			1///	1			:	:			:
				1							
				1							
				1			: :		· · · · · į · · · · · · · · · · · · · ·		
12.5				1			<u> </u>	:			
				7			<u>-</u>				
				1			-				
			1///	1			<u>-</u>	:			
				1							
15			_///	4			<u> </u>				
	Во	oring terminated at 15 ft.					<u>.</u>				
							L				
							L. i				
							[:			•	:
17.5							<u> </u>				•
							F				
							f				
=							<u> </u>		· · · · · · · ·		

		PROJECT: Cadence Phases 2 and 3					PROJECT NO.:	8144
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon						
((Fole)	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	oad				
	THE BY PERTS LLC	LOCATION: See Site Map				_	ELEVATION:	
م با	G OF BORING	DRILLER: D&S Drilling				_ เ	LOGGED BY:	SD
احا		DRILLING WILLIIOD. 8 TOWER Auger					DATE:	
	No. B3	DEPTH TO - WATER> INITIAL: \(\frac{\rightarrow}{2}\)	AFTER 2	4 HOU	JRS:	Ť	CAVING>	<u>C</u>
			<u>.0</u>	<u>e</u>	, s	00	TEST RESU	
Depth (feet)		Description	Graphic	투 하	Blow Counts	< #200	Plastic Limit	Liquid Limit
ے ت		,	້ ອັ	Sa	^m &	× %		77)
0							Penetration - ///////////////////////////////////	∕∠/ 40 50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown	1///	8504	3	59	: ' : '	: :
				1				:
			<i>Y///</i>	1				
				1				
			Y///	1				
2.5				1				
			<i>Y///</i>	1			<u> </u>	
			1///	1			<u> </u>	
			Y///	1				: :
			1///	1				: :
5			1///	1				
				1				: :
			1///	1				
				1				
				1			-	
				1				
7.5				1			L	
				1			L	
				1				
				1				: :
			1///	1				
10				1			<u>-</u>	
10			1///	1				
				1				
			1///	1				
				1				
				1				
12.5				7			_	: : :
				1			L	: :
			V///	1			L	
				1			L	
				1			[: : : : : : : : : : : : : : : : : : :	:
15				1			<u> </u>	: :
	Во	oring terminated at 15 ft.	\top	1				
		<u> </u>					<u> </u>	
							<u> </u>	
							 	
							 i	
17.5							L	
							L	
							L	
H				1			<u> </u>	

		PROJECT: Cadence Phases 2 and 3				_ [PROJECT	NO.:		8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon									
(role The Property LLC	PROJECT LOCATION: Ellsworth Road and Gua	adalupe Ro	oad							
		LOCATION: See Site Map					ELEVATIO				
LO	G OF BORING	DRILLER: D&S Drilling				_	LOGGED E			SD	
LO		DRILLING WILLITOD. 8 FOWER Auger						DATE		7/27/20	18
	No. B4	DEPTH TO - WATER> INITIAL: \(\frac{\(\frac{\(\pi\)}{2}\)	AFTER 2	4 HOL	JRS:	÷		CAVI	NG> _	·	
			<u>ن</u>	Ф	S	00			RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Lin			⊣ Liqu	uid Limit
اڭ ق			Ğ	Sa	ြက္ ပိ	%	Water Cor			71	
0							Penetration 10	on - <u>/</u> ∠ 20	/////// 30		50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown	1///	8504	4	54					:
	(-)	1 1, 8 1, 8		1							
				1							•
					6		777777	ק			
				1	9			/	:	:	
2.5				1				7	:		•
				1] :	:	:	÷
				1			:	:			
				1				:	:	:	:
			1///	8504	5	66		-	_		
				1					:		::
5				—	6		/////	77			
				1	10 12			//			
				1	'-			//			
				1					:	:	:
]						
7.5				1				:	:		:
				7			=				
				1					••••••		
				1							
				1			-		:		. ;
				1			<u></u>				
10				1			L		:		
				1							
				1			:		:		
				1							
			1///	1				• • • • • • • • • • • • • • • • • • • •	• • • • • • • •	• • • • • • •	
				1							
12.5				1			-				
				1			ļ				: ::::::::::::::::::::::::::::::::::::
				1			<u> </u>		:		
				1					:	:	:
							:		:		•
15				1							
13	Re	oring terminated at 15 ft.		1			=		• • • • • • •		
	D.	ornig terminated at 13 It.									
							<u>-</u>		:		:
							<u>.</u>		;		. ;
17.5							L		:	:	: :
							[:	:		:
							F :		:		:
							<u> </u>		• • • • • • •		• • • • • • •

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:	8144
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon						
(role/	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	oad				
	THE BY THE THE THE THE THE THE THE THE THE THE	LOCATION: See Site Map				_	ELEVATION:	
م با	G OF BORING	DRILLER: D&S Drilling				_ L	LOGGED BY:	SD
		DRILLING WETTIOD. 8 TOWER Auger					DATE:	
	No. B5	DEPTH TO - WATER> INITIAL: \(\frac{\rightarrow}{2}\)	AFTER 2	4 HOU	JRS:	Ť	CAVING>	<u>C</u>
			<u>.</u> 2	Ф	S	00	TEST RESU	
Depth (feet)		Description	Graphic	트 승	Blow Counts	< #200	Plastic Limit	Liquid Limit
ے ۵		·	_ ნ	es L	<u>"</u> 8	%	Water Content - ● Penetration -	<i>7</i> 71
0							10 20 30	40 50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		8504	6	54		: :
				1				
			Y///	1			<u> </u>	
				1				
			Y///	1			-	
2.5				1				
			1///	1			<u></u>	
				1			<u> </u>	
			Y///	1				
				1			[: : : : : : : : : : : : : : : : : : :	
5			V///	1				:
-				1				
				1				
				1			-	
				1			- ;;;;	
				1				
7.5				1			L	
				1				
				1				: :
				1				: :
				1				
10				1				
				1				
				1				
				1			.	
			Y///	1			<u> </u>	
12.5				1			L	
			Y///	1				
				1			[
			\///	1			<u> </u>	: :
			1///	1				· · · · · · · · · · · · · · · · · · ·
			\///	1			<u> </u>	
15	n	oring terminated at 15 ft.	1//	1			<u> </u>	
	В(ornig terminated at 15 ft.					-	
$\vdash \vdash$							 i	
							 ;;;;	: :
							<u> </u>	
17.5								
							<u> </u>	: :
							-	

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crismo	on, LLLP			'	PROJECT			8144		_
	Prole Maria La Control	PROJECT LOCATION: Ellsworth Road and C	uadalupe Ro	ad								
		LOCATION: See Site Map					ELEVATIO			CD.		
LOG	OF BORING	DRILLING METHOD: 8" Power Auger				_ L	LOGGED E			SD	2010	
	No. B6	DRILLING METHOD: 8" Power Auger DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOL	IDQ.	.		DAT	E: ING>	7/27/2	2018	
Т	140. D0	DEI III 10 - WATER> INITIAE. =							RESU			_
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Lin		NLOC		quid l	Limi
e De		Description	Gra	San	<u></u> 8 8	> %	Water Cor					
0			-			0,	Penetration		<i>//////</i> 30	2 40	50	
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, tan		8504	7	76	- · · ·	20				
				1			<u> </u>				:	
				1			 :	:	:	:		
				ł				:				
2.5							<u>-</u>	:				
							:		:	:	:	
				1			······	:	:	:	:	
				1			 :		:	:		
				ł			 :	•				
5				ł			<u></u>	:	:		:	
							<u> </u>	:	:		:	
							<u>-</u>		:	:		
				1			· · · · · · · · · · · · · · · · · · ·		:	• • • • • • •	• • • • • • • • • • • • • • • • • • • •	
				1			F :		· · · · · · · · · · · · · · · · · · ·	:		
7.5				ł			:					
7.5												
	(CL) Sandy Clay, mo	edium plasticity, slightly damp, light brown	3-10	8504	8	77			÷	-		
	(OL) Buildy Olay, III	pasterey, singing damp, fight orown		}								
]			<u>-</u>					
10				1			 :		:	:		
]				:	:	:		
				1					:			
				1					• • • • • • • • • • • • • • • • • • • •			
				1					:			
12.5				ł			:		:			
				1					:			
				1								
				ł					:			
				1					:			
15				1								
	В	oring terminated at 15 ft.							• • • • • • • • • • • • • • • • • • • •			
									:	:		
							:		:	:	:	
17.5									!			
							<u> </u>			:		
							:		:			
				l	l							

		PROJECT: Cadence Phases 2 and 3				_	PROJECT N	J.:	814	14
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,								
	role/	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	oad						
	PERIS LLC	LOCATION: See Site Map					ELEVATION:			
ارا	G OF BORING	DRILLER: D&S Drilling				_ L	OGGED BY		SD	
1-0		DRILLING WILTHOD. 8 FOWER Auger						ATE: _		//2018
	No. B7	DEPTH TO - WATER> INITIAL: \(\noting\)	AFTER 24	4 HOL	JRS:	<u>*</u>		AVING		
۲ (i.	<u>e</u>	' ts	00		EST RE		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit			Liquid Limit
			้อ	S _	ت ا	%	Water Conte Penetration		7777	
0							10 2	20 30	40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		8504	9	54		: ' :		:
				7						
				1			<u> </u>	:		•
				\vdash	7 8				• • • • • • • •	•
				1	11			<u>:</u> <u>:</u> .		:
2.5			<i>\///</i>	1				: : .		
			1///	\vdash	1					
			Y///	1			 	: : :		
				1			 	:	:	
				1			 	·		•
5				 	6		77777	:		
				1	6			<u>.</u>		
			<i>\///</i>	1				: :		
				1				: :		
				1						
7.5				1						:
			Y///	1						•
				1						• • • • • • • • • • • • • • • • • • • •
				1			:	: :	:	• • • • • • • • • • • • • • • • • • • •
			V///	1				: :		
10				1				: <u>.</u> .		
10			1///	1				:		
				1				<u>:</u> <u>:</u> -		• • • • • • • • • • • • • • • • • • • •
				1				!····!		
				1			<u> </u>	<u>:</u>		
				1				<u>.</u>		
12.5			<i>\///</i>	1				·		
				1			 	:	:	
			1///	1			 	<u>.</u>		
				7			L	: ::		
				1			 	: :	:	:
15				4			L	<u>.</u>		
	В	oring terminated at 15 ft.		1			<u> </u>	: ::		
							<u> </u>			
				1			[:	:	
							[:	• • • • • • • • • • • • • • • • • • • •
17.5				1			<u> </u>	:		
1								:		
							<u> </u>	· · · · · · · · · · · · · · · · · · ·		
				1	l	l	L			

		PROJECT: Cadence Phases 2 and 3				_ F				144	
l ,		CLIENT: PPGN-RAY, LLLP and PPGN-Crism									
((Prole)	PROJECT LOCATION: Ellsworth Road and C	uadalupe Ro	ad							
	THE PT TEXTS LLC	LOCATION: See Site Map				_	ELEVATION:				
ا م	G OF BORING	DRILLER: D&S Drilling				_ L	OGGED BY:			D	
-~		DitiELING METHOD. 6 Tower Auger						TE: _		27/201	8
	No. B8	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOU	IRS:	<u>*</u>		VING			
			٥.	Φ	ι	00		ST RE			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit			Liqui	id Limi
ے ت		•	ق	Sa	B &	× %	Water Content		7777		
0							Penetration - 10 20	30		0 5	50
	(CL) Sandy Clay, low-	-medium plasticity, slightly damp, light brow	/n ///	8505	þ	65	: ' :	7 :			:
		1		1				:		 :	:
				1				:			:
				1							•
				┨			<u> </u>				<u>:</u>
2.5				1			<u> </u>				
				1						•	:
				1				:			:
				1				:			:
				1				• • • • • • • •			:
				1				:			• • • • • • • • • • • • • • • • • • • •
5				18505		66	├	⊣ …			<u>:</u>
				1		•	<u> </u>			· 	<u>.</u>
				1			<u>.</u>				:
				1			<u> </u>	:			:
				1				:			:
7.5				1							• • • • • • • • • • • • • • • • • • • •
				1				• • • • • • • • •			
				1							
				1							<u>.</u>
				1							
				1			.				
10				1			L	:			•
				1				:			:
				1				:			
				1				:		,	:
				1				:			
				1				• • • • • • • • • • • • • • • • • • • •			
12.5				1							
				1				• • • • • • •			÷
				1			.				: :
				1				;			<u>:</u>
				1				:			
15				1				:			:
	В	soring terminated at 15 ft.		1				• • • • • • • •			
		8						• • • • • • • • • • • • • • • • • • • •			
								:			:
17.5							L	;			<u>:</u>
								:			:
								:			:
	i		1	1	i l		F	•			

		PROJECT: Cadence Phases 2 and 3				_ F				44	
l ,		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,									
((Pole ()	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Roa	ad							
	THE PT PERTS LLC	LOCATION: See Site Map				_	ELEVATION: _				
ار مرا	G OF BORING	DRILLER: D&S Drilling				_ L	LOGGED BY:		SD)	
-		Divide Me Tiob. 6 Tower Auger					DA			7/2018	8
l	No. B9	DEPTH TO - WATER> INITIAL: \(\forall \)	FTER 24	HOL	JRS:	<u>¥</u>	CA	/ING>	<u>_</u> _		
		•	.o	Φ	S	00	TES	T RES			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit		\dashv	Liquid	d Limit
ا ﷺ		Docompulari	Grő	Sal	ු කු	> %	Water Content				
0							Penetration - 10 20		⁄/// 40	50	.0
ľ	(SC) Clavey Sand, low-	medium plasticity, slightly damp, light brown	1:7:7:7	8505	2		10 20	1			
	(Se) stayey starta, is in	modum prosectly, enginery dump, ngm erom					<u> </u>			. :	•
										· · · · :	<u>.</u>
							<u> </u>			:	
							<u> </u>	:		· · · · :	
2.5							L <u>:</u> <u>:</u>				
								:	:	:	: :
								:		:	:
										:	· · · · · · · · · · · · · · · · · · ·
											• • • • • • •
							-			· · · · · :	
5				8505] 3		<u> </u>	——	• • • • • • • • • • • • • • • • • • • •	· · · · :	
							-			:	
										;	: :
							<u> </u>			:	
							L	:		:	
7.5								:		:	:
										:	:
								:	:	:	· · · · · · · · · · · · · · · · · · ·
										:	
									• • • • • • • • • • • • • • • • • • • •		:
							-				
10											:
							:	:		;	: :
							<u>.</u>			: : :	:
							L	·		:	
								:		:	:
12.5								:		:	
								:		:	:
								• • • • • • • •			:
								• • • • • • •			:
											:
15	_		1:7:7:7				L				· :
	В	oring terminated at 15 ft.					-			:	
							L				•
								:		:	:
								:			
17.5							F				
1/.5							 				:
							<u> </u>			;	
1 I							ļ			:	:

		PROJECT: Cadence Phases 2 and 3				_	PROJECT	140		01	.44	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismo		•								
	THE DIX PERTS LLC.	PROJECT LOCATION: Ellsworth Road and G					-: -: \(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- LI.				
		LOCATION: See Site Map DRILLER: D&S Drilling				- [ELEVATIO LOGGED)N: _		SI		
L00	G OF BORING	DRILLING METHOD: 8" Power Auger				- •	LUGGLD		ΓE:		7/201	Q
	No. B10	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	ı HOI	IRS:	<u>*</u>			/ING>		7/2010	0
	1101 1010	JEI III O WATERS INITIAL				_			T RES		•	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Li				Liquid	d Lim
(fe		Description	Gra	San	S @	, V	Water Co	ntent -	. •		•	
_						6	Penetration	on -				.0
0	(GC) Clavey Gravel	low-medium plasticity, slightly damp, brown	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	8505	4		10	on - 20	30	40) 5	50
	(GC) Clayey Graver,	iow medium plusticity, slightly dump, orowi										• • · · · · · ·
				ł								· ·
				1			-		· · · · : · ·			•
				ł								:
2.5]			- :					• • •
				1			<u> </u>					• • •
							<u> </u>	:				• •
							<u>.</u>	<u>.</u>				: :
				1			<u>.</u>	: ::	:			•
5				1			<u>.</u>	:	·	:		• •
				1			<u> </u>					•
								:				:
				1				:		:		•
				1								•
7.5				1				•				•••••
7.0				1				:				· · · · · ·
				1				:				: :
				1			:					: :
												: :
				1								: :
10				1			:					: :
]				:				•
				1				•••••				<u>:</u>
			7.4%	1			-					: :
12.5			1/2/2	1			-	• • • • • •				:
\dashv]			<u> </u>					· • · · · · ·
				1								:
				}			<u> </u>					: :
]								: :
15				1								: :
	В	oring terminated at 15 ft.					<u>.</u>		.			· :
							<u> </u>	·				: : :
								:				•
							[:	:				•
17.5							[: : : : : : : : : : : : : : : : : : :					· · · · · · ·
							-	:				 : •
-							<u> </u>	:				· · · · · · ·
			1	l	I	I	F					

		PROJECT: Cadence Phases 2 and 3				F	PROJECT	NO.:		8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,									
(role)	PROJECT LOCATION: Ellsworth Road and Gua	adalupe Ro	oad							
		LOCATION: See Site Map					ELEVATIO				
	G OF BORING	DRILLER: D&S Drilling				_ เ	OGGED E	_		SD	
LU		Divide in Elitob. 6 Tower Auger						DAT		7/27/2	018
	No. B11	DEPTH TO - WATER> INITIAL: \(\forall \)	AFTER 24	4 HOL	JRS:	<u>*</u>		CAV	/ING> _	<u>c</u>	
_			٥.	Φ	S	8			T RESU		
Depth (feet)		Description	Graphic	Sample No.	Blow	% < #200	Plastic Lim			⊢ Liq	quid Limit
ا څ ت			ق	Sa	ြီ ပိ	v	Water Con			71	
0				1			Penetration	n - 20	30	⊿ 40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown	1///	8505	\$				1		:
	, , , , , ,	1 3, 2 3 1, 2		1			-				
-				1			<u>-</u>		:		
				}	R		//////	7			
			<i>Y///</i>	1	8 11		V////				
2.5				1				<u> </u>	:		
			<i>Y///</i>	1			<u> </u>				
				1			L		:	<u>:</u>	:
				1			[:	:	:	÷	•
				1			[:		•		
5				1			<u> </u>	:	:	:	•
	soil tra	nsitions to medium plasticity		8505	6 R 16		//////	1	<i>7777</i>		
				1	20					l :	
				}—	1		<i>//////</i>			• • • • • • • • • • • • • • • • • • • •	
				1			<u>-</u>				
				1			-				
7.5				1			- :				
				1			ļ				
				1			-				
				7			<u> </u>		;	<u>:</u>	;
				1			:			:	:
10							[:		
				1			:		:	:	•
										• • • • • • • • • • • • • • • • • • • •	
				1							
-			Y///	1			<u> </u>		• • • • • • • • • • • • • • • • • • • •		
				1			<u> </u>				
12.5			\///	1			F				
				1			 				
				1			ļ				
				1			L		: <u>:</u>		
				1			<u> </u>		:		
15				1					:		
	Во	oring terminated at 15 ft.	1	1			_		:	:	:
		-					 				
==							<u> </u>				
							<u> </u>	•			
							<u> </u>				
17.5							<u> </u>				
							<u> </u>				
							 		·		
				1			<u> </u>	•	<u> </u>	•	•

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crist	non, LLLP			- '	PROJECT			814	4	
(Prole	PROJECT LOCATION: Ellsworth Road and		ad								
`	THE PT PERTS LLC.	LOCATION: See Site Map					ELEVATIO					
100	G OF BORING	DRILLER: D&S Drilling				_ L	OGGED I	3Y: _		SD		
LU		DRILLING METHOD: 8 Power Auger							E:		/2018	,
	No. B12	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOU	IRS:	<u>¥</u>		CAV	ING>	<u>c </u>		
۲ (ie	le le	/ ts	00:			T RESU			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Lir			⊣ ∟	iquid	Lim
			ق	Š	ت ت	%	Water Co Penetration			771		
0							10	20	30	40	50)
	(SM) Silty Sand	, non-plastic, slightly damp, light brown		8505	ľ		<u> </u>			:		
								:	:	:	:	
							:	:	:	:	:	
							:			:	:	
2.5										•	:	
							:	:	:	•	:	
								:	:	:	· · · · · · · · · · · · · · · · · · ·	
\dashv							<u> </u>	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	•		
\dashv							<u> </u>	· · · · · · ·	:			
							<u></u> :			:		
5							:	‡			· · · · :	
										:		
										•	· · · · :	
							-					
7.5							<u> </u>					
							-					
							<u>:</u>	:		:	: ::::::::::::::::::::::::::::::::::::	
							<u> </u>	.			: :	
								:	:		:	
10											:	
							:				:	
											• • • • • • • •	
											· · · · : · :	
2.5												
							-					
							-					
15		1 . 1 . 15 6					<u> </u>					
	В	oring terminated at 15 ft.										
							: :					
							<u>.</u>					
							L					
L7.5							L			:		
							L					
							[::			•	:	
							<u> </u>	<u> </u>				

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crismo	n. LLLP			_ '	PROJECT			8144	•	
(Pole	PROJECT LOCATION: Ellsworth Road and Gr		ad								
`	THE PT PERTS LLC	LOCATION: See Site Map					ELEVATIO					
ı O	G OF BORING	DRILLER: D&S Drilling				_ ι	OGGED E			SD		_
LU.		ORILLING WIETHOD. 8 Power Auger								7/27/2	2018	
	No. B13	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOU	RS:				ING> .			_
⊊ <u>ਦ</u>			hic	e .	w nts	% < #200	Plastic Lin		RESU		quid L	<u> </u>
(feet)		Description	Graphic	Sample No.	Blow Counts	# ٧	Water Cor				quiu L	1111
_			-	-		%	Penetratio					
0	(CL) Sandy Clay low-	medium plasticity, slightly damp, light brow	n ////	8505	В		10	20	30	40	50	_
=	(CL) bandy Clay, low	medium plasticity, sngittly damp, ngitt brow	" \///	1			<u>-</u> :		• • • • • • • • • • • • • • • • • • • •		· · · : · ·	
\dashv				1			L	·		· · · · · · · · · · · · · · · · · · ·	· · · : · ·	
				}	6		/////				•	
_				1	6 7				•			
.5				1								
\dashv				}				· · :· · ·		:	:	
				1			:					
-				1				· · :		· · · :		
_				1			<u>-</u> :	· · :		· <u>:</u>	· · · : · · · :	
5				_	8 11		//////	7			· · · : · ·	
-				1	9						:	
\dashv				8505	þ		\//// \				:	
\dashv				_			7////	<u> </u>			:	
.5]				:			:	
				}				:	:	:	· · · · : · · · · · · · · · · · · · · ·	
\dashv				1				:	:	:	:	
\dashv				1				:		:	:	
				1				:				
.0				1				:	• • • • • • • •	:		
				1				:		:	:	
\neg				1				:	:	:		
				1			F					
				1							:	
2.5				1			F	:	• • • • • • • • • • • • • • • • • • • •	:		
				}					• • • • • • • • • • • • • • • • • • • •			
				1			F					
				1			Ī	:	:	:	:	
				1				:		:	:	
15]				:	:	:	:	
	В	oring terminated at 15 ft.						:		:	:	
								:		:	:	
								:		:	:	
							[
7.5							L					
							L					
							L					
				1	I		F	• • • • • • •		• • • • • •		

		PROJECT: Cadence Phases 2 and 3	LIID			_ F	PROJECT I	NO.:		8144	
(CLIENT: PPGN-RAY, LLLP and PPGN-Cris PROJECT LOCATION: Ellsworth Road and		ad.	-			-			
(THE PTX PERTS LLC.	LOCATION: See Site Map	Guadarupe Ko	Dau			ELEVATIO	M.			
		DDII I ED. Dec Deilling				_	LOGGED B			SD	
LO	G OF BORIN	DRILLING METHOD: 8" Power Auger						DATI	E:	7/27/20	018
	No. B14	DEPTH TO - WATER> INITIAL: ₩	AFTER 24	4 HOL	JRS:	÷			ING> 🤇		
			. <u>Q</u>	<u>e</u>	S	8			T RESUI		
Depth (feet)	1	Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Lim Water Con			— Liqı	juid Limit
	_		Ō	ű	20	%	Penetration			a	
0				8506			10	20	30	40	50
	(CL-ML) Silty Cla	ay with Sand, low plasticity, slightly damp, to	ın]6500	ľ						
	1			1			-				
	1			1	R		777777	771		.	: : : : : : : :
	1			1	10 12				:	: 	:
2.5	1			 	-					· · · · · · · · · · · · · · · · · · ·	
_	1						-	•	•	• • • • • • • • • •	•
	1						<u>-</u>			·	
	1			1			<u>-</u>				
	1			1			<u>-</u>	•	•	• • • • • • • • • •	•
5	1			1—	R		//////	•		· ·	•
	1			1	7 9			•		·	
	1			\vdash	-						
	1						-				
	1]			<u> </u>				
7.5	1			1							
	1			1							
	1			1							
	1			1							
	1								• • • • • • • • • • • • • • • • • • • •		
10	(CC) C1 C 1 1-		10-12	8506	1		<u> </u>	\vdash			
	(SC) Clayey Sand, 10	ow-medium plasticity, slightly damp, light b	own Chil	1							
	1			1							
	1			1							
12.5	1		<i>[,]</i>	1			 :			:	· · : · · · · · · · · · · · · · · · · ·
12.5	1			1			:	:	:	:	:
	1			1			:	:	:	:	• • • • • • • •
	1			1			-				
	1			1			-				
15	1		<i>[:/://</i>	1				:	:		
		Boring terminated at 15 ft.	7.7.7.	1							
	1	-									
	1								!		
	1								:	:	:
.7.5	1							•		:	
	1										
	1								!		
-				1	1	L	L	• • • • • • •	:		• • • • • • • • •

	Pole X	PROJECT LOCATION: Ellsworth Road and		ad							
	THE PT YERTS LLC.	LOCATION: See Site Men				_ E	ELEVATIO	N:			
20		DRILLER: D&S Drilling					OGGED E			SD	
_0(G OF BORING	DRILLING METHOD: 8" Power Auger						DAT	E:	7/27/2	2018
	No. B15	DEPTH TO - WATER> INITIAL: ¥	_ AFTER 2	4 HOL	IRS:	¥		CAV	ING>	<u>c </u>	
			.º	Φ	S	00		TEST	RESU		
(feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Lin			—∣ Lie	quid
ا چ ز			قَ	Sa	က ပ	> %	Water Cor Penetratio		,,,,,,,,,	<i>7</i> 3	
0							10	n - <u>/</u> 20 ∷	30 1.	⊠ 40	50
	(CL) Sandy Clay, me	edium plasticity, slightly damp, light brown	1 ///	8506	2			:	٦.		:
				1			:		:		
				1				· · .i. · · ·			· · · · .
\dashv				1			:				
\dashv				1				· · · · · ·	• • • • • • • • • • • • • • • • • • • •		:
. 5				1			-				
				1				· . :			
				7			<u>:</u>				
				1			<u>.</u>	<u>:</u>			
							<u> </u>				
,				1			:	:	•	•	
				1			:	:			:
				1				:		•	
				1			:	:	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	
				1			: :				
				1				· · :			• • • • • •
.5				1							
_				1			<u>-</u>				
_				1			<u> </u>				
_				1			<u> </u>				
				1			<u>.</u>				
0				1			<u> </u>	<u>:</u>	· · · · · · · · · · · · · · · · · · ·		
				7			:			:	
				1			[:			
				7					:		
				1					• • • • • • • • • • • • • • • • • • • •		
							: :				
.5				1				• • • • • • •	• • • • • • • • • • • • • • • • • • • •		• • • • • •
				1			-				
				1							
				1			-				
_				1							
.5			///	4							
	В	oring terminated at 15 ft.									
							<u> </u>			:	
							:	:			
				1			<u> </u>	:	• • • • • • • • • • • • • • • • • • • •	:	:
7.5				1			F				
				1							
\dashv				1			<u> </u>	:			
- 1			1	1	ı	ı	I :	•	•	•	•

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:		814	4
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon, I								
(THE PTX PERTS LLC.	PROJECT LOCATION: Ellsworth Road and Guad	lalupe Ro	ad						
		LOCATION: See Site Map					ELEVATION:			
LO	G OF BORING	DRILLER: D&S Drilling				_	LOGGED BY:		SD	2010
	No. B16	DRILLING WETTIOD. 8 TOWER Auger	FTER 24	HOL	IDG.	•	DA	IE: VING>	7/27/	2018
	110. D10	DEFITIO-WATERSINITIAL. =A	1					T RESU		
Depth (feet)		D	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit			iquid Li
(fe Je		Description	Grag	Sar	Sou	¢ > 9	Water Content	- •		
						6	Penetration -			5 0
0	(CL) Sandy Clay low-	-medium plasticity, slightly damp, light brown	1///	8506	В		10 20	30	40_	50
	(CE) Sundy City, 10 W	modum plasticity, slightly damp, light slown		1			<u> </u>			
				ł			<u> </u>	:		
				1			<u>- </u>			
				1			<u> </u>			
2.5]			<u> </u>			
				1			<u> </u>			
				-			<u> </u>			
	•• .	anatatana ka marata 11 20 0		8506			ļ 			
	soil tr	ansitions to medium plasticity	Y///	0006	*		ļ			
5				1			<u> </u>	.	:	
				1			L		:	•
]					:	:
				1				:	:	:
				1						:
7.5				1					:	
7.5				1			F			• • • • • • • • • • • • • • • • • • • •
				1			<u>- </u>			
				1						
]						
				1			<u>-</u>		•••	
10				ł			F			
				1			<u>-</u>			
			Y///	1			<u>-</u>			
\dashv							 			
			V///	1			<u> </u>			
2.5				1			<u> </u>	: !		
				1			 	· · · · • • · · ·	:	
			1///	1			.			
]			L			:
				1			L			:
15				1			L			
	В	Soring terminated at 15 ft.								
							: :			:
									:	:
							<u> </u>	• • • • • • • • • • • • • • • • • • • •	:	:
L7.5							F			
-,.5							 			
							F			
I										

		PROJECT: Cadence Phases 2 and 3						IO.: _		3144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crisme									
1 ((Prole X)	PROJECT LOCATION: Ellsworth Road and C	uadalupe Roa	ad							
	THE DT PERTS LL.C.	LOCATION: See Site Map				_ E	ELEVATION	l:			
م با		DRILLER: D&S Drilling				_ [OGGED B	Y:	S	SD	
	G OF BORING	DRILLING METHOD: 8" Power Auger						DATE:	7.	/27/201	18
	No. B17	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOL	JRS:	¥		CAVIN	G> _C		
						0		TEST R	ESUL 1	rs	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limi			Liqui	id Limi
(fe		Description	Gra	San	S m	V	Water Cont	ent -			
						%	Penetration				
0	(0.0 0.0 0.1 0.1 0.1		marana	8506	5		10	20 :	30 4	40 :	50
	(SC-SM) Silty Clayey S	and, low plasticity, slightly damp, light bro	wn H		Ĭ		-	. .			·
							<u> </u>		:	<u>:</u>	<u>:</u>
							:	:	:	:	:
					R 8			7		:	:
2.5					12			}	:	:	:
2.5							<i>///////</i>	⊿ :		: :	:
							<u> </u>	· • · · · · · ·	:	<u>:</u>	<u>:</u>
							<u> </u>	:	:	:	:
							<u> </u>	. :	:	<u>:</u>	<u>:</u>
							<u> </u>		:	:	:
5							:	:	•	:	:
					R 14				\mathbb{Z}	:	:
					19					•	• • • • • • • • • • • • • • • • • • • •
							7/////		<u> </u>	:	
							-			<u>:</u>	<u>.</u>
							-			<u>:</u>	
7.5							<u> </u>			<u>:</u>	<u>:</u>
							<u>L</u>	•	•	· ·	•
										:	:
									:	:	:
							F			:	:
								•		÷ · · · · ·	:
10							F			<u>:</u>	<u>.</u>
							-		·	:	:
							<u> </u>			: ::::::::::::::::::::::::::::::::::::	: :
							<u></u>			<u>:</u> .j	<u>:</u>
							<u> </u>			:	:
12.5							:			:	:
									:	:	:
2.5										:	
									! ·····	:	<u>:</u>
							-			<u>.</u>	
									·	. <u>:</u>	<i>:</i>
15							L			: 	
	В	oring terminated at 15 ft.					L		· ·	: 	
							!	:	:	:	:
							[•	:	:	:
							<u> </u>		:	:	•
							<u> </u>		: · · · · ·	· · · · · · · · · · · · · · · · · · ·	<u>.</u>
17.5							F	·		: :	<u>.</u>
							<u> </u>				
							<u> </u>		:	:	<u>:</u>

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.	:	8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon	, LLLP							
	(role)	PROJECT LOCATION: Ellsworth Road and Gua	adalupe Ro	oad						
	THE PT PERTS LLC	LOCATION: See Site Map				_ E	ELEVATION:			
ا ا		DRILLER: D&S Drilling				L	OGGED BY:		SD	
ĮĽO	G OF BORING	DRILLING METHOD: 8" Power Auger						TE:	7/27/20	18
	No. B18		AFTER 2	4 HOU	JRS:	¥		AVING>		
				Т	1			ST RESI		
et)		.	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit		<u> </u>	ıid Limit
Depth (feet)		Description	Jrap	mg Z	Blo Sou	٧	Water Content		, Liqu	na Emm
				0,	\perp	%	Penetration -		<i>7</i> 2	
0			7.7.7	30500			10 20			50
	(SC) Clayey Sand, low-	medium plasticity, slightly damp, light brow	n [/////	8506	0		L : ' :'	' : :	:	
								:	:	
			7.7.7	4				•	•	:
			7.7.7.					• • • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	
				<u> </u>						
2.5							L			:
							Li		·	
				:					:	<u>:</u>
								:	:	
				:			: :	:	:	:
									· · · · · · · · · · · · · · · · · ·	
5			17.7.7	4						· [
				3						
		6	-8	: 8506			ļ <u>:</u>	<u>:</u>	4	. :
	(CL) Sandy Clay, me	edium plasticity, slightly damp, light brown		10000	ľ		L			:
								:	:	
7.5				1				•	•	•
-				7			F			
				1						
				7						
				1						
				7			<u> </u>			
10				1			L : :	:	:	. :
				1				:	:	:
			Y///	1				:	:	:
				1			<u> </u>		· · · · : · · · · · · · · · · · · · · ·	
								• • • • • • • • • • • • • • • • • • • •		
				1			-			
12.5								• • • • • • • • • • • • • • • • • • • •	· · · · .	
				1						
				7			L			
				1				:	:	
				7				•	•	:
1.5				1			-			
15	D.	oring terminated at 15 ft.	1//	1			<u> </u>			
\vdash	D	orms terminated at 13 It.					-			
							.			
							.			:
L								:		
17.5								:	•	:
							-			
							<u> </u>			
				<u>L</u>		L	<u></u>	<u> </u>	<u> </u>	<u> </u>

			PROJECT: Cadence Phases 2 and 3					PROJECT NO.:	814	44
			CLIENT: PPGN-RAY, LLLP and PPGN-Crism	on, LLLP						
	((Fole)	PROJECT LOCATION: Ellsworth Road and C	Suadalupe Ro	oad					
		THE DT PERTS LLC.	LOCATION: See Site Map				_ [ELEVATION:		
			DRILLER: D&S Drilling				ı	LOGGED BY:	SD	1
	LO	G OF BORING	DRILLING METHOD: 8" Power Auger				_	DATE:	7/27	7/2018
		No. B19	DEPTH TO - WATER> INITIAL: ¥	AFTER 2	4 HOL	IRS:	<u>¥</u>	CAVIN		
		1101 2 10	<u> </u>		Т				ESULTS	
	æ æ			Graphic	Sample No.	Blow Counts	< #200			Liquid Limit
	Depth (feet)		Description)rap) Sam) 음 (한	٧	Water Content -		
					0,		%	Penetration -		
	0				8506			10 20 3	30 40	50
		(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, tan		0000	P		L		
<u>ë</u>					1				: :	:
s e								i :		:
₽				MM		R 11			:	•
Š					1	13				
ij	2.5				igwedge			<i>(////////</i>	: <u>:</u> .	
i i								ļ <u>.</u>		
e l					1			ļ <u>.</u>	<u>:</u> :	
This information pertains only to this boring and should not be interpreted as being indicitive of the site.					1			<u> </u>		
g a									: :	:
rete	5							· · · · · · · · · · · · · · · · · · ·		:
terp					1				: : : : : :	•
e l					1					
ఠ									· · · · · · · · · · · · · · · · · · ·	
u D								ļi		
امور					1			-	:	
ts p	7.5				1				<u>:</u>	
a an								<u> </u>	: :	:
Ē,				MM					: : : : : : : : : : : : : : : : : : : :	:
s pc					1				: : :	
ţ					1					
ᅌ					_				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
o	10				1			F	įį.	
ins					1			ļ		
ert					4			<u> </u>	<u>.</u>	
ď										.
nati					1			L	:	·
힐	12.5				1					:
sin					4				: : : :	
ᄅ]					
					1				! ! .	
					1			<u>-</u>		
									·	
	15				4				<u>:</u>	
		В	oring terminated at 15 ft.					L		
								<u>[</u>		
					1				:	:
					1			T	: : : : : :	:
	1							<u> </u>	:	
	17.5								<u> </u>	
					1			<u> </u>		
								<u> </u>	:	· · · · · · · · · · · · · · · · · · ·
							_			

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.: _	8	3144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon.	LLLP							
	role/	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	oad						
	THE PT PERTS LLC.	LOCATION: See Site Map				_ E	ELEVATION:			
ماا	C OE DODING	DRILLER: D&S Drilling				_ [LOGGED BY:	S	SD	
լե	G OF BORING	DRILLING METHOD: 8" Power Auger					DATE	:7/	27/2018	8
	No. B20	DEPTH TO - WATER> INITIAL: \(\overline{\pm}\)	AFTER 2	4 HOL	JRS:	¥	CAVIN	IG> C		
			U	σ.	, n	0	TEST	RESULT	s	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200		$\overline{}$		d Limit
		Description	Gra	Sar	m S	× %	Water Content -			
				-		°`	Penetration -			-0
0	(CL) Sandy Clay low	medium plasticity, slightly damp, light brown	177	8506	9		10 20	30 4	10 5	50
	(CL) Salidy Clay, low-	medium plasticity, slightly damp, light brown	Y///	1					:	:
				1			.		:	· •
			Y///	1				:	•	•
				1			<u> </u>	:		
2.5			Y///	1				:	:	:
				1				:		
			<i>Y///</i>	1			: :	•	• • • • • •	:
				1			<u>.</u>		: :	· · · · · · · ·
			Y///	1				:	:	
				1					: •	: •••••••
5	anil tra	unsitions to medium plasticity		8507				$\stackrel{\cdot}{+}$:	<u>:</u>
	SOII tra	institions to medium plasticity		10307	ľ		<u> </u>		: :	:
							L		•	•
				1						:
				7						:
7.5				1				•		 •
7.5				7					:	:
				1					:	: · · · · ·
				7			-		: :	
				1			-	:	:	:
				7					<u>:</u>	<u>.</u>
10				1			L	:	:	
				7			: :	:		:
				1						:
				7						• • • • • • • • • • • • • • • • • • • •
				1			F	· [· · · · · ·]		:
				7				. [:	:
12.5				1				. [
				7					:	<u>.</u>
				1					<u>:</u>	<u>:</u>
				7			<u></u>		:	·
				1			L		·	: :
15								:	:	:
	Ве	oring terminated at 15 ft.					[: : : : : : : : : : : : : : : : : : :		:	
							<u> </u>	• • • • • • • • • • • • • • • • • • • •	: :	
							-		:	
\vdash							-		· ·	
$\vdash \vdash$							 		· :	<u>.</u>
17.5							L		:	: :
							<u> </u>		. :	
							L			
				1	L		<u> </u>			
1										

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crismo	on, LLLP			_ '	PROJECT			8144	
(Pole X	PROJECT LOCATION: Ellsworth Road and G		ad							
,	THE PT PERTS LLC.	LOCATION: See Site Map					ELEVATIO				
I O	G OF BORING	DRILLER: D&S Drilling				_ [OGGED E			SD	
	No. B21	DRILLING METHOD: 8 Power Auger	1575D 0			_				7/27/2	2018
	NO. DZ I	DEPTH TO - WATER> INITIAL: \(\frac{\pi}{2} \)	AFTER 24	4 HOU	RS:	_			ING> 1		
<u></u> €			Pic	be .	w nts	% < #200	Plastic Lin		Γ RESUI		quid Lin
(feet)		Description	Graphic	Sample No.	Blow Counts	4 > 0	Water Cor	ntent -	•		quiu Eiii
$\frac{1}{2}$			$\overline{}$	-		8	Penetratio				F 0
0	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brow	n ///	8507			10	20	30	40	50
\dashv	(02) Sundy Cluy, 10 //	medium pulsurety, originary dump, right of the	" \///	1						• • • • • • • • • • • • • • • • • • • •	:
\dashv				1			:	:	:	:::::::::::::::::::::::::::::::::::::::	
				\vdash	6 6		/////	• • • • • • • • • • • • • • • • • • • •		•	•
				1	7				• • • • • • • • • • • • • • • • • • • •	:	
2.5				1				:	:	:::::::::::::::::::::::::::::::::::::::	
\dashv				┰				:		:::::::	
-				1			<u>-</u>		• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	
				1					• • • • • • • • • • • • • • • • • • • •	:	
5				1			<u>-</u>	• • • • • • • • • • • • • • • • • • • •		:	:
				1	13 19			777	7///	\overline{Z}	· · · · · · · · · · · · · · · · · · ·
\dashv				1	22						:
				1							:
				1			<i> </i>	///		<u> </u>	:
.5				1			:				:
				1			F	• • • • • • • • • • • • • • • • • • • •		:	
				1							
\neg				1							
				1			F :				
10				1				:	:	:	:
				1				:	:	:	•
				1						:	:
				1							:
				1						:	
2.5				1						:	:
				1				:	:		
				1						:	
				1			:			:	:
				1						:	
15				1			:	:	:	:	:
	В	oring terminated at 15 ft.]						:	:
								:	:	:	:
										:	:
7.5							[:			:	•
							[:		•	:	:
							[:		:	:
				1	l	l	F		:		

		PROJECT: Cadence Phases 2 and 3							!	8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon									
(PO C	PROJECT LOCATION: Ellsworth Road and Gu	adalupe Ro	ad							
		LOCATION: See Site Map				_	ELEVATIO				
LO	G OF BORING	DRILLER: D&S Drilling				_ L	OGGED I	-		SD	2016
	No. B22	DRILLING METHOD: 8" Power Auger	ACTED 2	4 1101	IDC.	_			TE:	7/27/2	2018
	NO. DZZ	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOU	JK5:	_			VING>		
# #			Pj.	e .	۸ str	% < #200	Plastic Lir		ST RES		quid Limi
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	# ٧	Water Co				quia Limi
				o)		%	Penetration				
0	(GT) G 1 G1 1		1777	8507	•		10	20	30	40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		10007	Ī						
				1			<u> </u>	: .	:		
				<u>↓</u>				.			
				1	R 5 9						
2.5				<u> </u>	9				:	:	:
				1			:	:	:	:	:
				1			:		:	:	:
				1			:	:	• • • • • • • • • • • • • • • • • • • •		
				1			 :				:
5				1					:	:	
				_	R 15		/////	777	////		
				1	19						
				}—			<i>[/////</i>	<u> </u>			
				1			<u> </u>				
] 18507:	 }		-				
7.5					Ĭ		L				
				1			L	:			
				1			<u> </u>				
				1			.				
				1							
10				1							
				1			L	:			.
				1					:	:	Ė
				1							:
				1							
12.5				1			:	:			:
				1						• • • • • • • •	
				1							
				1				• • • • •			
				1				• • • • •	• • • • • • • •		
				1							
15	D	oring terminated at 15 ft.		1			<u> </u>				
	D(oring terminated at 15 ft.					-	·			
							<u>.</u>				
							 				·
							<u> </u>	<u>:</u>			
17.5							L		: :		.
							<u> </u>				
									:	: '	:

		PROJECT: Cadence Phases 2 and 3						0.:		3144	
Ι,		CLIENT: PPGN-RAY, LLLP and PPGN-Crist									
(Pole (PROJECT LOCATION: Ellsworth Road and	Guadalupe Ro	oad							
	THE BY PERIS LAND	LOCATION: See Site Map				_	ELEVATION:				
ار م	G OF BORING	DRILLER: D&S Drilling				_ L	OGGED BY			SD	
ات)		Dittellito METHOD. o Tower Huger						ATE:		27/20	18
	No. B23	DEPTH TO - WATER> INITIAL: ♀	_ AFTER 2	4 HOL	JRS:	Ţ		AVIN	G> C		
			<u>.</u> 2	е	Ś	00		EST R			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit			Liqu	iid Limi
اے ۵		·	ق ا	es –	ш ö	%	Water Conte				
0										10	50
	(SM) Silty S	Sand, non-plastic, slightly damp, tan		8507	4		:	:	:	:	:
	•						:	• • • • • • •	• • • • • •	• • • • • •	:
								: :	: :	: :	. <u>.</u>
							-	· ·	:	•	:
								•	•	•	· : · · · ·
2.5								: 	<u>.</u>	: 	
								· 	· 	· 	. :
							<u> </u>	•	•		:
							 	· ·	•	· ·	: :
							<u> </u>	· ·	· ·	•	: :
5							:	•	:	•	:
											:
								•	•	•	:
							:	······· :	:	:	:
							: :	: :	:	:	. :
								· · ·	•		:
7.5							F	: •	:	:	· : · · · ·
							-	: 	:		. :
							-	: :	:	· 	
							-	: :	<u>.</u>	· 	
							-	: :	:	· :	. ;
10							<u> </u>	: :	:	: :	
							<u> </u>	: :	:	:	:
							L	· ·	· ·	•	: . :
								:	:	:	:
								:	:	:	:
12.5							:	:	:	:	:
							:	•	:	:	:
										· · · · · ·	
								:	:	· · · · · · ·	
							<u> </u>	•	<u>.</u>	<u>:</u>	• • • • • •
				:			<u> </u>			<u>.</u>	
15	ח	Soring terminated at 15 ft.		4			F	•	<u>:</u>	· 	
	В	oring terminated at 15 ft.					-	· 	<u>.</u>	· -	
							 	: :	: :	: :	
							-	: :	· • · · · · · ·	: :	
							L	: :	: :	:	
17.5							L	: 	:	:	
							L			•	
							[:	:	:	:
-							<u> </u>			:	

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crismo	n. LLLP			- '	PROJECT			814		
(Pole X	PROJECT LOCATION: Ellsworth Road and G		ad								
	THE PT PERTS LLC.	LOCATION: See Site Men				E	LEVATIO	N:				
. ^		DDILLED. DOGDER					OGGED E					
LU	G OF BORING	DRILLING METHOD: 8" Power Auger							E:			8
	No. B24	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	HOL	IRS:	¥			ING>			
		<u> </u>	U	a)	<i>(</i> 0	0		TES	r RESU	JLTS		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Lin			<u> </u>	_iquid	l Lin
ا څ ۵		Docomption	l g	Sar	ු කු	> %	Water Cor			771		
0							Penetration 10		30	40	50	0
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brow	/n ///	8507	5			20		:		
\neg	, , ,			1				:	:	:	:	:
\dashv				1			L: :				:	:
				1			<u>:</u>					
				1			:	• • • • • • • • • • • • • • • • • • • •			• • • • • •	: :
.5				1			<u> </u>				:	: :
				1			<u> </u>					
				}			<u>:</u>	:				:
				1			<u>.</u>				:	: :
				1			<u>.</u>	<u>:</u>				
5				1			<u> </u>					
				1			<u> </u>	:			:	:
				1			:				:	
				8507	5		:	1			:	:
				1			:	:			:	:
.5				1							• • • • • • • • • • • • • • • • • • • •	•
				1			<u> </u>					
				1				• • • • • • • • • • • • • • • • • • • •				. · · · ·
				1			:	:				:
\dashv				1				• • • • • • •		• • • • • •	• • • • • • •	:
\dashv				1								
0				1								
_				1								:
				1								
				1								: :
_				1								: :
2.5				}				: :				· • · · ·
_				1			: :					:
				1				:				
				1			<u>.</u>					:
				1								:
L5				1			:	:	:		:	:
	В	oring terminated at 15 ft.						:				
								:			• • • • • •	:
												:
\dashv												:
_							<u> </u>					:
7.5							<u> </u>					: :
\dashv							- :					
			1	ı	I	ı	I :	:	:		:	_

		PROJECT: Cadence Phases 2 and 3				F		-	8144	
l ,		CLIENT: PPGN-RAY, LLLP and PPGN-Cris								
(POLE ME PY CERTS LLC.	PROJECT LOCATION: Ellsworth Road and	Guadalupe Ro	ad						
		LOCATION: See Site Map					ELEVATION: _			
lLO	G OF BORING	DRILLER: D&S Drilling				_ [LOGGED BY:		SD	
	No. B25	DRILLING METHOD. 6 Tower Auger	ACTED 2		·DO.	_	DA1		7/27/2	2018
<u> </u>	NO. DZ3	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOU	JKS:	_		/ING>		
# ÷			Pic	e .	۸ str	200	TES	T RESU		quid Limi
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Water Content		LI	quiu Liiiii
				J"		%	Penetration -		2	
0	(OT.) 0 1 O1 1	1. 1 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	///:	18507	7		10 20	30	40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light bro	own ///	1			<u></u>			
				1			<u></u>		·	
				↓	R				<u>:</u>	:
				1	9				.	·
2.5					'3				<mark>:</mark>	
				1			L	·		•
				1					:	:
				1				:		:
				1						•
5				1						•
				\top	R 11				:	
				1	24				:	:
				\vdash	1					
				1			:		· · · : · · · ·	
				1			<u></u>		<u>:</u>	
7.5				1			F			
				1						
				1			ļ			
				1						
				1			:		;	;
10				1			L		:	
				1			ļi		: .	
				1					<u>:</u>	
				1					<u>:</u>	
				1						
12.5				1			L			
				1						
				1						
				1					:	:
				1						
15				1						
13	R	oring terminated at 15 ft.		1						
	D	oring terminates at 15 It.					<u> </u>			
							<u> </u>			
							-		· · · :	
							-			
17.5							<u> </u>			
							<u> </u>		<u>:</u>	
4						1				
				1		1	Г			

		PROJECT: Cadence Phases 2 and 3				_	PROJECT NO.:		8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	LLLP							
	(Fole)	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	ad						
	THE PT YERTS LLC.	LOCATION: See Site Map				_ E	ELEVATION: _			
ا. م		DDILLED, Dec Dailling				_	_OGGED BY:		SD	
LO	G OF BORING	DRILLING METHOD: 8" Power Auger				_	DAT	E: 7	//27/201	8
	No. B26	DEPTH TO - WATER> INITIAL: ¥	FTER 24	HOU	JRS:	¥		/ING> C		
$\vdash \vdash \vdash$		<u> </u>	1					T RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	TREGGE		d Limit
Ред (fe		Description	3ra	Sar	징圙	v v	Water Content -		1 = 1.	~ _
			<u> </u>	, , , , , , , , , , , , , , , , , , ,	oxdot	%				
0	(01) 0 1 01 1		177	85078			Penetration - [30 4	40 5	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		100071	[•		: :
				1			Liii			:
							: :	:	:	•
			<i>Y///</i>					•	•	:
							<u> </u>			:
2.5			1///				<u> </u>		<u>:</u>	:
]			 			:
							<u> </u>		<u>:</u>	<u>:</u>
			Y///				: :	:	:	:
									:	:
5			<i>Y///</i>				: :	:	:	:
				'			F · · · · · · · · · · · · · · · · · ·			
\vdash							<u> </u>		·	<u>:</u>
				85079			├	4		:
				6507	ľ !		<u> </u>	· :		<u>:</u>
			Y///					:	:	:
7.5							Ī : : : : : : : : : : : : : : : : : : :			:
			<i>Y///</i>				<u> </u>	•	•	:
							F		:	:
\vdash			<i>\///</i>							<u>.</u>
$\vdash \vdash \vdash$]			 			
							L			<u>.</u>
10				<u> </u>			L : :	:	:	:
								:		
							: : : : : : : : : : : : : : : : : : : :		:	:
							<u></u>			
				·				••••		· · · · · ·
							<u> </u>			
12.5				ا ا			L			·
				ן '						
				j '				:	:	:
							F	:		
				·				• • • • • • • • • • • • • • • • • • • •		
15	D	oring terminated at 15 ft.	<u> </u>				-			·
	В	oring terminated at 15 ft.								<u>.</u>
										· •
								•	•	•
									:	:
17.5							-			
							ļ			
									:	

		PROJECT: Cadence Phases 2 and 3				_ •	PROJECT N	•		144	
l,		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon									
(Pro e	PROJECT LOCATION: Ellsworth Road and Gu	adalupe Ro	ad							
		LOCATION: See Site Map					ELEVATION:		C.		
LO	G OF BORING	DRILLER: D&S Drilling DRILLING METHOD: 8" Power Auger				_ '	OGGED BY-	: DATE:	S:	D 27/2018	
	No. B27	Brilling in Filod. 6 Tower Auger	AFTER 24	1 HOI	IDG.	•		AVINO		27/2018	8
	INO. DZ1	DEFINIO-WATERSININAL. =		1		_			ESULT:		
et)			Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit			S Liquic	d Limit
Depth (feet)		Description	Grag	San	[공 교	۰ ۷	Water Conte				
				-		8	Penetration			0 5	
0	(CL) Sandy Clay low	-medium plasticity, slightly damp, light brown	, ////	8508	•		10 2	20 3	30 4	0 5	50
	(CL) Sandy Clay, low	-medium plasticity, sugnity damp, fight brown	' ///	1			<u></u>	: :	:		: :
				1			<u></u> :	•	: · · · · · :		<u>:</u>
					6		/////	: :	: ::		: :
				1	6 9			:	: : :		: :
2.5				1				•	:		: :
				<u> </u>				: :	::	· · · · · · :	: •
				1			<u>.</u>	: :	: :		<u>:</u>
				1			<u>.</u>	: :	:		: :
				1			<u>:</u>	· ·	:		: :
5					_			:	:		:
				1	7 12				:		:
				1	14						:
				1							•
							:				• • • • • • • • • • • • • • • • • • • •
7.5				1				: :	:		: :
7.5				1			F				
				1				•	:		•
				1			: :	: :	: :		: :
				1			-				
				1			-				
10				1			<u> </u>	: :			<u>:</u>
				1			-				
				1			-	• •••••••			
				1			-				
				1			<u></u>				: :
12.5				1			-	: :	: : :		: :
				1			<u>.</u>	: :	: [:		: :
				1			<u>.</u>		:		: :
				1			<u>.</u>		:		: :
				1			L		:		: :
15]			L	: :			:
	E	Boring terminated at 15 ft.									:
								:	:		:
							[: : : : : : : : : : : : : : : : : : :	•	:		:
							<u></u>	: :	: · · · · · : : : :		:
17.5							F				• • • • • • • • • • • • • • • • • • • •
1/.5									:		•
-							F	<u>.</u>			: :
$\vdash \vdash \vdash$						1	-				

		PROJECT: Cadence Phases 2 and 3 CLIENT: PPGN-RAY, LLLP and PPGN-Crismon	, LLLP			_ '	PROJECT NO	J.:	814	14	_
(Po e X	PROJECT LOCATION: Ellsworth Road and Gu		ad							_
`	THE PT Y PERTS L.L.C.	LOCATION: See Site Map				_ [ELEVATION:				_
· ^	G OF BORING	DOULED. DOGDOUG				_	LOGGED BY		SD		_
LU		TORILLING WETHOD. 8 Power Auger						ATE:		7/2018	_
	No. B28	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOL	JRS:	Ţ	C	AVING	;> C _		
		•	.ij	<u>e</u>	rts	00:			SULTS		_
(feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit Water Conte		 	Liquid Li	mit
			Ū	ű	20	%	Penetration -				
0				8508				0 30		50	
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		10000	'		<u> </u>	: ' : :;		:	
				1			<u>.</u>	:	:		
				1			<u>:</u>	:	<u>.</u>	:	
				1					:	·	
2.5				1			L	·	:		
				1			<u> </u>	:	:	:	
				1					:		
				1			:		:	:	
				1					:	:	
5				1			:		:	•	
				1				: :	:		
				1							
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, tan		8508	2		F		:	•	
	(ez mz) smy smy	with suite, is a plasticity, singlify dump, tun		1			<u> </u>		:		
7.5							F				
7.5							F	: : :			
				1				:			
				1			: :	:			
				1				:			
10							F				
10							F	: : :			
				1			<u>-</u>	: · · · · · i :			
				1			F	:	<u>.</u> <u>.</u>		
				1			<u>-</u>	<u> </u>			
				1			<u>-</u>				
2.5							-				
							<u>-</u>				
				1							
				1			-				
				1			-				
15				-			-				
	В	oring terminated at 15 ft.					-	: :			
							<u>.</u>				
							<u>-</u>	: :i	:		
							<u></u>				
7.5							<u> </u>	: :			
							L				
							L	: :			
				1			L :		•	•	

OF BORING No. B29	CLIENT: PPGN-RAY, LLLP and PPGN-Crismo PROJECT LOCATION: Ellsworth Road and Gr LOCATION: See Site Map DRILLER: D&S Drilling DRILLING METHOD: 8" Power Auger DEPTH TO - WATER> INITIAL: Description	AFTER 24		Blow Counts	<u>*</u>	CA	t - ●	C_ ULTS — L	/2018 Liquid Lim
OF BORING No. B29	LOCATION: See Site Map DRILLER: D&S Drilling DRILLING METHOD: 8" Power Auger DEPTH TO - WATER> INITIAL: □ Description	AFTER 24	Sample No.	Blow Counts	_ L	DA CA TE Plastic Limit Water Conten Penetration -	ST RES	7/27 <u>C</u> _ ULTS — L	/2018 Liquid Lim
lo. B29	DRILLER: D&S Drilling DRILLING METHOD: 8" Power Auger DEPTH TO - WATER> INITIAL: □ Description	Graphic	Sample No.	Blow Counts	_ L	DA CA TE Plastic Limit Water Conten Penetration -	ST RES	7/27 <u>C</u> _ ULTS — L	/2018 Liquid Lim
lo. B29	DRILLING METHOD: 8" Power Auger DEPTH TO - WATER> INITIAL: □ Description	Graphic	Sample No.	Blow Counts	_ ¥	TE Plastic Limit Water Conten Penetration -	ST RES	7/27 <u>C</u> _ ULTS — L	/2018 Liquid Lim
lo. B29	DEPTH TO - WATER> INITIAL: □ Towar Auger Description	Graphic	Sample No.	Blow Counts		TE Plastic Limit Water Conten Penetration -	ST RES	C ULTS — L	iquid Lim
	Description	Graphic	Sample No.	Blow Counts		TE Plastic Limit Water Conten Penetration -	ST RES	ULTS	
L) Sandy Clay, low-					% < #200	Plastic Limit Water Conten Penetration -		<u> </u>	
L) Sandy Clay, low-					07 = 12	Water Conten Penetration -	t - ●		
L) Sandy Clay, low-					> %	Penetration -			50
EL) Sandy Clay, low-	medium plasticity, slightly damp, light brow	n	8508	3					50
L) Sandy Clay, low-	medium plasticity, slightly damp, light brow	n	8508	3			1	:	:
							:	:	• • • • • • • • • • • • • • • • • • • •
						<u> </u>			
						<u></u>	• • • • • • • • • • • • • • • • • • • •		
			1			ļ <u>.</u>			
			1			<u> </u>			
			1						
		- V//	1			L	:	:	
			1			: :	:	:	:
			1				:	:	:
			1					:	:
			1			F · · · · :			
			1			<u></u>			
			1						
			1			<u> </u>			
			1			- :			;
			1			L			
			1			L	:	:	:
			1				:	:	:
			1					:	
			1					:	
			1			<u> </u>			
			1			<u> </u>			
			1						
			1			<u>i</u>			
			1			ļi			
			1			<u> </u>			
			1						:
			1			L			:
			1				:	:	:
			1					:	:
			1			· · · · · · · · · · · · · · · · · · ·			:
			1						
	oring terminated at 15 ft	- 1///	1			F			
D	oring terminated at 15 ft.					<u></u>			
						ļ			
						<u> </u>			
						L i	:	:	:
									:
						F ::::::::::::::::::::::::::::::::::::			:
			1						
_	В	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.	Boring terminated at 15 ft.

(Fo_e)	PROJECT LOCATION: Ellsworth Road and	Guadalupe Ro	ad							
	THE PT PERTS LLC	LOCATION: See Site Map				_	ELEVATION				
0	G OF BORING	DRILLER: D&S Drilling				_ [LOGGED B			SD	
		DRILLING WETHOD. 8 Power Auger	A FTF -	41167	ın a	_		DATE:		/27/201	18
	No. B30	DEPTH TO - WATER> INITIAL: ¥	AFTER 24	4 HOU	KS:				NG> ∴		
<u> </u>			hic	e .	w orts	< #200	Plastic Limi		RESULT		ıid Limi
(feet)		Description	Graphic	Sample No.	Blow Counts	# V	Water Cont		•	Liqui	IG LIIII
				0,		%	Penetration	ı - 💯			
0	(CL) Candy Clay Jaw	medium plasticity, slightly damp, light bro	7//] 18508	ļ		10	20	30 4	40 5	50
_	(CL) Salidy Clay, low-	medium plasticity, sugnity damp, ugut ore	,wii ///	1							÷
\dashv				1							
-				├─	R			:	:	:	:
\dashv				1	6 7			:	:		:
5											<u>:</u>
\dashv			\///	1			-	. <u>:</u>		<u>:</u>	<u>:</u>
\dashv				1				:	•	•	:
\dashv				1			-	. .	: :	: 	<u>:</u>
_				1			:				· •
4				1—	R		777777	7			<u>:</u>
				1	9			/			. <u>:</u>
				1	''			2			. :
				1					:		: . :
				1				:	:		: . :
5				1			L				
			-8-10 12	1			<u> </u>	_	•	•	•
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, ta		8508	5		<u> </u>	!			
				1			:	:	•	:	: . :
				1							. .
0				1			L	: ::	:	:	: ::
									:	:	<u>.</u>
			ИW					:		:	
				1			L				
				1				:	:	:	:
.5				1			L				
				1							
									:		
				1						•	•
				1					• • • • • • • •		
5				1					• • • • • • • • • • • • • • • • • • • •		
	Ве	oring terminated at 15 ft.		1					•		
		č									
							=				
\dashv							F			· · · · · · · · · · · · · · · · · · ·	· · · · · ·
┧							F			÷ · · · · ·	<u> </u>
.5							F	· <u>:</u> · · · · ·		÷	<u>:</u>
-							-	·	•		÷
									_		

		PROJECT: Cadence Phases 2 and 3						·	8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crisn								
((Frole)	PROJECT LOCATION: Ellsworth Road and	Guadalupe Ro	ad						
		LOCATION: See Site Map					ELEVATION: _			
میا	G OF BORING	DRILLER: D&S Drilling				_ ι	LOGGED BY:		SD	
1-0		DRILLING WIETHOD. 8 Power Auger					DA		7/27/2	2018
	No. B31	DEPTH TO - WATER> INITIAL: \(\overline{\pm} \)	_ AFTER 24	HOU	JRS:	¥	CA	VING>	<u>c </u>	
۲ 🦳			. <u>S</u>	<u>e</u>	/ ts	00		ST RESU		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit - Water Content		—∣ Li	quid Limi
			ָס ס	Š	20	%	Penetration -		77	
0							10 20		40	50
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, ta		8508	Б		L	:	:	
				1				:	:	:
			ואוו				[: :	•	:	:
2.5					R 8				:	
2.5					11			• • • • • • • • • • • • • • • • • • • •	:	
2.5				1				:	:	:
				1			<u> </u>	• • • • • • • • • • • • • • • • • • • •		· · · · · · · · · · · · · · · · · · ·
							F	• • • • • • • • • • • • • • • • • • • •		· · · · · · · · · · · · · · · · · · ·
							<u> </u>		:	· · · · · · · · · · · · · · · · · · ·
				1						.
5				ł			<u> </u>			
				ļ			ļi		:	
							ļi.	· · · · · · · · · · · · ·		
				1			<u> </u>			
				1					:	
7.5				ł			L	·	:	.
									:	:
			MM						:	:
				1					:	
				ł					:	•
10			ואוו	ļ			F			
10										· · · · · · · · · · · · · · · · · · ·
									:	:
				1				• • • • • • • • • • • • • • • • • • • •		
				ł			<u>-</u>			
				ļ			<u>-</u> i			
12.5	-						<u> </u>			
							<u>- </u>			
				1			ļ . .			
				ł			 		:	
							<u> </u>			
15							L	: :	:	: <i>:</i>
	Į F	Boring terminated at 15 ft.					L		·	: :
							L			
							[: : : : : : : : : : : : : : : : : : :	:	:	
							[: : : : : : : : : : : : : : : : : : :		:	
17.5							F		:	
17.5							 			
							F			
	l			l	l	1	L			

		PROJECT: Cadence Phases 2 and 3					_ F	PROJECT N	o.:	8	3144	
l .		CLIENT: PPGN-RAY, LLLP and PPGN-Cris	mon, LL	LP								
	Pole (PROJECT LOCATION: Ellsworth Road and	l Guadalı	upe Roa	ıd							
	THE STREET SELEC	LOCATION: See Site Map					_	ELEVATION				
الم	G OF BORING	DRILLER: D&S Drilling					_ L	OGGED BY	·:	S	SD	
יטיון		DRILLING METHOD: 8" Power Auger							ATE:	7/	27/20	18
	No. B32	DEPTH TO - WATER> INITIAL: ♀	AFT	TER 24	HOU	IRS:	Ţ	0	CAVING	G> C		
		•		O	(I)	(0	00	Т	EST R	ESULT	S	
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit			Liqu	iid Lim
ا ۾ ڇ		Beschphon		Gra	Sar	_ S	٧ %	Water Conte				
0							٠,	Penetration 10 2			10	50
0	(SM) Silty	Sand, non-plastic, slightly damp, tan		111111	8508	7		10 2	.0 3	200	+0	30
	(SIVI) SIILY	Janu, non plastic, slightly damp, tan						:	·	:		. :
								<u>.</u>	•	•		
								<u>:</u>	•	:	:	·
								<u> </u>	•		:	:
2.5								:	:	:	:	:
								:	•	• • • • • • • • • • • • • • • • • • • •	:	:
								<u> </u>	:	:	:	:
-								<u> : :</u>	•		:	. :
								- :	•	· · · · · ·	:	· : · · · ·
								<u> </u>	· •	· · · · · · · ·	: 	:
5								<u>:</u>	<u>.</u>	· •	<u>:</u>	. :
								L	•	•		:
									:	:	:	:
								:	•	:	•	:
								 :	: :	:	: :	· •• · · · · · · · · · · · · · · · · ·
			H						•	:		· : · · · ·
7.5								<u> </u>			: :	
									:	:		. ;
								<u>.</u>	: :	:	: :	. <u>:</u>
								<u>.</u>	•	•	•	:
			H					:		:		:
10												
								: :	: :	:		
									: :	· · · · · · · · · · · · · · · · · · ·	 !	
									· · · · · ·		: · · · ·	• • • • • •
								-				
									<u>:</u>	·	· :	
12.5								ļ	: :	: :	: :	: . :
								.	: :	:	:	:
l								<u> </u>			1	
								[:::::::		:	:	:
								F :	: :	:	: :	
								<u> </u>		:	: :	. <u>.</u>
15	т	Boring terminated at 15 ft.		:1:1:1:1:								
	Γ	oring terminated at 13 It.						 		<u>.</u>	<u>.</u>	
								 	: :	: :	<u>:</u>	
								L	: :	:	:	:
								<u> </u>	: :		· · ·	<u>:</u>
17.5									:	:		:
								[:	:	
								<u>-</u>		· · · · · · · · · · · · · · · · · · ·	: :	
									<u> </u>		<u> </u>	
									:			

		PROJECT: Cadence Phases 2 and 3				_ 「	PROJECT N	J	0	3144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon	, LLLP								
	(Pole X	PROJECT LOCATION: Ellsworth Road and Gu		ad							
	THE DT PERTS LLC.	LOCATION: See Site Map				E	ELEVATION:	:			
۱. ؍		DDILLED. D&C Dailling				_	OGGED BY		S	SD	
LU	G OF BORING	DRILLING METHOD: 8" Power Auger				_		DATE:		/27/201	8
	No. B33	DEPTH TO - WATER> INITIAL: ♀	AFTER 24	HOU	JRS:	<u>*</u>			G> C		
\vdash	T	<u> </u>		1	Г 1				ESULT		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit				d Limit
(fe De		Description	Gra	San	[호 펿	V	Water Conte	ent - 🔸	•		~ -
			+	ļ		%	Penetration				
0	(CC CM) CH CL C	1 1 1 2 2 1 1 1 1 1 1 1 1 1	- HATAI	8508	 		10 2	20 3 I.	30 4	10 5	50
	(SC-SM) Silty Clayey S	Sand, low plasticity, slightly damp, light brow	n H		[-			•	
							<u> </u>	<u>:</u>	<u>:</u>	: :	:
				'			:	•	:	•	•
							:	:	:	•	
2.5	1						<u></u> :	:	•	•	•
2.5	-						<u> </u>	:	:	•	•
	-							<u>:</u>	:	: :	:
							-	:	:	•	:
							<u>.</u>	<u>:</u>	:	· •	· •
							<u>:</u>	:	:	•	
5							:	:	:	:	:
	1						<u> </u>	:	:	•	:
	=						F			: •	
<u> </u>	-							:	:	•	:
	-		KKKK	'			-	:		•	<u>:</u>
	1						 		:	•	<u>:</u>
7.5			KKKK				L	<u>:</u>	<u>.</u>	: :	<u>.</u>
							L	· ·	:	•	:
			KAKA						:	:	
	1							:	:	•	:
	-						 :				
H.,	-								· · · · · ·	:	<u>:</u>
10	-							<u>:</u>		· 	: :
	-			'			-	:	·	· :	:
	=			'			<u> </u>	: :	:	: :	: :
							L	: :	: :	•	: :
			KKK								
12.5								:	:	•	:
								:	:		:
	-							:		:	:
	-									<u>.</u>	
	_			'			-	:	:	.	.
				'			:	: ::	:	:	: :
15							L	: 	:	:	:
	В	oring terminated at 15 ft.					:		:	•	•
							:	:	:		:
	=						<u>-</u>				
	-							÷	<u>:</u> · · · · · ·	· · · · · · ·	:
	-						<u> </u>	: :		•	
17.5	-						-				
								<u>:</u>	<u>:</u>	•	
l							<u> </u>			•	
						1 7	1 .				

		PROJECT: Cadence Phases 2 and 3	LIID			_ F	PROJECT N	0.:	8144	
(PROJECT LOCATION: Ellsworth Road and Gu		nad						
	THE PTY PERTS LLC.	LOCATION: See Site Map	adarupe Ro	oau		-	ELEVATION			
		DDILLED. D&C Dailling				_	LOGGED BY		SD	
LO	G OF BORING	DRILLING METHOD: 8" Power Auger						DATE:	7/27/20	018
	No. B34		AFTER 24	4 HOL	JRS:	Ť		CAVING>		
<u>_</u>			.0	Φ	S	00	T	TEST RES		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit		—— Liq	uid Limit
			ق	Š	L S	%	Water Conte		777)	
0				30500				20 30	40	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		8508	ď		<u> </u>	<u>.</u>		
				7			<u>.</u>			
				1	6		:			
				1	11 11			4		
2.5				1	''			4		
				1				2 :		
				1				<u>.</u>	· · · · · · · · · · · · · · · · · · ·	.
				1			<u>.</u>		· · · · · · · · · · · · · · · · · · ·	
				1			<u>.</u>			.
5			5-7	10500	7		:	įi.	: 	.
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, tan		8509	0 7 9 9					
				1	3			<u>.</u>		
				1						
				1						
7.5										
							<u>.</u>	<u>.</u>		
]			<u>.</u>	<u>.</u>	: :	
				1			<u>.</u>	<u>.</u>	: :	
				1			-			
10				1			_	<u>.</u>		
				4			ļ			
							<u>.</u>			:
							ļ			
				1			-			
L2.5				1			<u> </u>			
				1			-			
				1			-	<u>.</u>		
							-	<u>.</u>		
							-			
15	n		$-\mu \cup \mu$	7			<u> </u>			
	В	oring terminated at 15 ft.					-	<u>.</u>		
							<u>-</u>			
							:			
							-	<u>.</u>		
L7.5							<u> </u>	<u>:</u>		
							L	: ::		
							-	<u>:</u>		

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:	8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	LLLP						
((Fro e)	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	ad					
1	THE PT PERTS LLC.	LOCATION: See Site Map				_ E	ELEVATION:		
ا ا		DRILLER: D&S Drilling				L	LOGGED BY:	SD	
ILO	G OF BORING	DRILLING METHOD: 8" Power Auger				_	DATE:		8
	No. BC1		AFTER 24	4 HOL	JRS:	¥	CAVIN		
				_	1			RESULTS	
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200		Liquid	d Limi
e G		Description	Gra	San	S m	V	Water Content -	•	
			<u> </u>	ļ		%	Penetration -		
0	(GT) G 1 G1 1		1///	8509			10 20	<u>30 40 5</u>	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		1	ĺ		<u> </u>		
				1			<u> </u>	: :::	
				1				: :	:
				┨			: :		:
2.5				1			: :	: :	•
2.5				1			<u> </u>	· · · · · · · · · · · · · · · · · · ·	
				1				:	•
				1			ļ	· · · · · · · · · · · · · · · · · · ·	:
			1///	1			<u> </u>	<u> </u>	:
				1			<u> </u>		
5				1				:	:
	В	foring terminated at 5 ft.							
							: :	:	• • • • • • •
								· · · · · · · · · · · · · · · · · · ·	
								• • • • • • • • • • • • • • • • • • • •	•••••
7.5									
									:
								: : : :	
							<u> </u>	: :	:
10									
12.5								<u>:</u>	
								: : [:]	
								: :	
								: :	:
									:
15									:
$\vdash \vdash$							-		<u>:</u>
\vdash									<u>.</u>
							-	: :	·
							<u> </u>	<u>:</u>	:
17.5							L		· ·
1]									
									•
H									

		PROJECT: Cadence Phases 2 and 3					_ F	PROJECT	NO.:		8	144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crism	on, Ll	LLP									
	role)	PROJECT LOCATION: Ellsworth Road and C	Guada	lupe Ro	ad								
		LOCATION: See Site Map					_	ELEVATION					
ماا	G OF BORING	DRILLER: D&S Drilling					_ L	OGGED	_			D	
		DIVILLING WILLINGS. 8 TOWER Auger										27/201	8
L	No. BC2	DEPTH TO - WATER> INITIAL: ♀	_ AF	TER 24	HOL	JRS:					i> <u>C</u>		
도 🙃				Jic	<u>e</u>	st s	< #200				SULT		
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	7# >	Plastic Li Water Co				Liqui	d Limi
				9	S	- 0	%	Penetrati					
0					8509			10	20	30		0 5	50
	(CL-ML) Silty Clay	with Sand, low plasticity, slightly damp, tar	1		18509	Í		<u>.</u>		:		: 	<u>:</u>
								<u>.</u>				: :	: :
				$\mathcal{M}\mathcal{M}$	1			:				•	
				$\mathcal{M}_{\mathcal{M}}$	1			:		:		• • •	•
2.5			ı		ł			L	:			:	:
			ŀ					:	:	:		:	:
									:			:	:
				ИW	1			:	:			:	:
					1			:	:			•	:
5					ł			:		:		•	• • • • • • • • • • • • • • • • • • • •
	В	Boring terminated at 5 ft.		211121				:	:			•	:
		-						:	:	:		•	:
													:
								: :				:	:
7 5								:				:	:
7.5								:					:
								:				· · · · · · · ·	
								:				:	:
												:	:
-												:	<u> </u>
10													<u>.</u>
													<u> </u>
													<u> </u>
													<u>:</u>
12.5								-		:		• • • • • • • • •	
								<u> </u>					į
\vdash								-					<u>.</u>
								-		:		: :	: :
15								-		:		: :	<u>:</u>
								<u> </u>				: :	: :
								<u> </u>		:			<u>:</u>
								<u> </u>				:	: :
								<u> </u>		:		: :	<u>:</u>
17.5								<u> </u>				: : :	<u>:</u>
								<u> </u>					:
													:
					<u> </u>		<u> </u>	<u> </u>		***		• • • • • •	• • • • • • • • • • • • • • • • • • • •

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:	-	8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	, LLLP							
((Fro e)	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	ad						
1	THE PT PERTS LLC.	LOCATION: See Site Map				_ E	ELEVATION: _			
ا ا		DRILLER: D&S Drilling				L	OGGED BY:		SD	
ILO	G OF BORING	DRILLING METHOD: 8" Power Auger				_	_		7/27/2013	.8
	No. BC3		AFTER 24	4 HOL	JRS:	¥		/ING> _C		
				_	_			T RESUL		
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit		<u> </u>	d Limit
e G		Description	Gra	San	H S	V	Water Content -		•	
			\bot	ļ.,		%	Penetration -			
0	(GT) G 1 G1 1		1///] 18509	l R		10 20	30	<u>40 5</u>	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		1	ľ		<u>.</u>		·	·
				1			L		:	: :
				1				:	:	•
				1			[: : : : : : : : : : : : : : : : : : :	:	:	:
2.5				1					:	:
2.5							F · · · · · : · · · : · · · : · · · :		:	: :
				1				:		:
							<u> </u>		:	<u>:</u>
			1///	1			<u> </u>		:	:
				7			<u> </u>			
5			<u> </u>	1			L	: :	:	:
	В	foring terminated at 5 ft.						:		
										:
								:	:	
										•
7.5							L			
							-		:	·
							.			<u>:</u>
							<u> </u>			•
								:		
10								:	:	
									•	:
							F			
									·	
							-			
							- i			
12.5							L			
							: :			
							L		.:	<u>;</u>
								:	:	:
							: :	:	:	:
15								:	:	:
1							<u> </u>			
							<u> </u>			· · · · ·
							<u> </u>			<u>.</u>
							<u> </u>		÷	:
							<u> </u>			
17.5							L		:	: :
								:	:	:
							[: : : : : : : : : : : : : : : : : : :	:	:	:
							<u> </u>		••••••	<u> : </u>

		PROJECT: Cadence Phases 2 and 3					_ F	PROJECT NO	O.:	8	3144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crist	non, LI	LLP								
((Prole ()	PROJECT LOCATION: Ellsworth Road and	Guadal	lupe Roa	ad							
	THE DY PERTS LLC	LOCATION: See Site Map					_ E	ELEVATION:				
م ال		DRILLER: D&S Drilling					_ L	OGGED BY	·	S	D	
լե	G OF BORING	DRILLING METHOD: 8" Power Auger						D	ATE:	7/	27/201	.8
	No. BC4	DEPTH TO - WATER> INITIAL: ¥	AF	TER 24	HOU	IRS:	¥	c	AVINO			
									EST RI			
Depth (feet)		Description		Graphic	Sample No.	Blow Counts	< #200	Plastic Limit			Liqui	d Limit
9 8		Description		Gra	San	Coc	> %	Water Conte	ent - 🗨	•		
							6	Penetration -	- 7///			
0	(CM) C11 C			1:1:1:1:1	85094	1		10 2	20 3	80 4	10 5	50
	(SIVI) SIITY S	and, non-plastic, slightly damp tan							· ·	: :		
									•	•	•	:
									•	:	:	:
									•	•	•	:
2.5									•	•	•	:
2.5									 :	:	: :	:
								<u> </u>	•	•	•	:
								<u> </u>	: 	: :	:	<u>:</u>
								<u> </u>	•	· •	·	:
									: :	: :	:	<u>:</u>
5								L	•	:	:	:
	В	foring terminated at 5 ft.										:
									•	• • • • • • • •	•	:
									:	:	:	:
									•	:	:	:
								<u> </u>	: :	:	:	<u>:</u>
7.5								<u> </u>	•	:	:	<u>:</u>
									: :	: :	<u>:</u>	<u>:</u>
									: :	: :	: :	:
									<u>:</u>	:	:	<u>:</u>
								:	•	:	:	:
10											:	:
										:	:	:
									:	:	:	:
									•		:	: · · · · ·
									· :	: :	<u>:</u>	<u>:</u>
12.5								<u> </u>	: 	: :	: :	: :
								<u>:</u>	· ·	: :	:	<u>:</u>
									:	:	:	:
									:	:	:	:
									:	:	:	:
								<u> </u>	:	:	:	:
15								<u> </u>	<u>.</u>	· · · · · ·	:	<u>:</u>
								-	•	· 	· 	
								<u> </u>		:	:	:
								 	: :	: !	: :	:
								<u> </u>	• •	:	:	;
17.5								L	•	:	:	:
								[•	•	•	:
									•	• • • • • • •	•	:
									<u>:</u>	:		<u>: · · · · · · · · · · · · · · · · · · ·</u>

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT	NO.:		8	144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	LLLP									
(Prole (PROJECT LOCATION: Ellsworth Road and Guad	lalupe Ro	ad								
l '	LOCATION: See Site Map DRILLER: D&S Drilling LOGGED B											
ما		DDULLED: DOGD :III				_ L	OGGED E	BY:		S	D	
LU	G OF BORING	DRILLING METHOD: 8" Power Auger						DA		7/	27/201	8
	No. BC5		FTER 24	HOL	JRS:	¥		CAV	VING	> <u>C</u>		
			U	_O		0		TES	T RE	SULT	s	
Depth (feet)		Description	Graphic	nple o	Blow Counts	% < #200	Plastic Lin	nit -				id Limit
9 £		Description	Gra	Sar	S _B	× %	Water Cor					
0			+			٠,٥	Penetratio				.0 5	50
\dashv	(CL) Sandy Clay low-1	medium plasticity, slightly damp, light brown	177	8509	5		10	20	30	, 4	0 .	30
	(CL) buildy Clay, low l	medium plasticity, slightly damp, light brown		ł			<u>-</u> :				 !	
				1			-					
			<i>V///</i>	ł			<u>.</u>					
				1			<u>:</u>		:			:
2.5				ł			<u> </u>		:			
				1			:	•	:			:
			<i>V///</i>	1			[:			:
			1///	1			<u> </u>	:	•		· · · · · · · · · · · · · · · · · · ·	•
				ł					• • • • • • •		 •	
				1			: :					
5	D	oring terminated at 5 ft.	1///	-			<u> </u>		• • • • • • •		<u>.</u>	<u>:</u>
	D	oring terminated at 3 ft.					<u>-</u> :					
							<u> </u>		:			:
							<u></u>					
							<u>.</u>	:	:			:
7.5							:					
							[
							:	:		•	,	
							F :					
) :	
							-				:	
10							-					
							-					
							<u>-</u>				:	: :
							<u> </u>					· ·
12.5							:				· ·	
							<u> </u>		• • • • • •			
							-					
15							-				<u>:</u>	.
							 		:			<u>:</u>
							<u> </u>	.				
												:
							:::::				· · · · · · · · · · · · · · · · · · ·	
17.5							<u> </u>	•	•			
17.5							 		• • • • • •		· · · · · · · · · · · · · · · · · · ·	· · · · · · ·
							-					·
							<u> </u>	· . :	· · · · <u>·</u>	<u> </u>	<u> </u>	<u>:</u>
												

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:		8144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon	, LLLP							
	(Fro e	PROJECT LOCATION: Ellsworth Road and Gua	adalupe Ro	ad						
	THE PT PERTS LLC	LOCATION: See Site Map				_ E	ELEVATION:			
ا ا		DRILLER: D&S Drilling				L	OGGED BY:		SD	
LO	G OF BORING	DRILLING METHOD: 8" Power Auger					DATI		/27/201	.8
	No. BC6		AFTER 24	HOL	JRS:	¥		NG> C		
				1	1	_		RESUL		
£ (£)		B	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	RECOL		d Limit
Depth (feet)		Description	3rag	Sar. R	鰠	* V	Water Content -			
				, , , , , , , , , , , , , , , , , , ,		%	Penetration -			
0			1777	8509			10 20	30	<u>40 5</u>	50
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		10309	ľ					<u>:</u>
				1				:	:	:
			1///	1				:	:	:
				1					•	:
			1///	1				:		:
2.5				1						·
$\vdash \vdash$			\///	1			ļ 		<u>:</u>	<u>:</u>
				1			.			<u>:</u>
			V///	1			_			:
				1			: :	:	•	:
5				1				:	:	:
	В	Soring terminated at 5 ft.	1///	1			:	•	•	:
									·	<u>:</u>
										<u>:</u>
							-			:
							.			: :
7.5							L	: :	•	•
								:	:	:
										:
								:	•	:
										:
										<u>:</u>
10							<u> </u>			<u>:</u>
							;;		÷	:
							L	:	:	: :
							L	:	:	<u>:</u>
								:	:	:
12.5								:		:
1213								:		:
										· · · · · ·
\vdash							-			<u>:</u>
									÷	:
									: .;	: :
15							<u> </u>			:
								:	:	:
								•	•	:
							<u> </u>			:
								•••••••	•	<u>:</u> · · · · ·
							-		÷	<u>:</u>
17.5							<u> </u>			<u>.</u>
							L			<u>:</u>
							L			
\vdash						<u> </u>	<u> </u>	• • • • • • • • • • • • • • • • • • • •	•	•

NO.:	8144
N:	
BY:	SD
DATE:	7/27/2018
CAVING>	C
TEST RESUL	LTS
	─ Liquid Limit
itent - •	-
n - //////// 20 30	40 50
20 30	40 30
•	
: ::	
	<u>.</u>
: :	: :
	: :
: : :	

		PROJECT: Cadence Phases 2 and 3				_ F	PROJECT NO.:		3144	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	LLLP							
	(Fole)	PROJECT LOCATION: Ellsworth Road and Guad	dalupe Ro	ad						
	THE PTY PERTS LLC.	LOCATION: See Site Map				_ E	ELEVATION: _			
1, 4		DRILLER: D&S Drilling				_ L	OGGED BY:	;	SD	
- '	OG OF BORING	DRILLING METHOD: 8" Power Auger					DAT	E :7	/27/201	18
	No. BC8	DEPTH TO - WATER> INITIAL: \(\frac{\rightarrow}{2}\) A	FTER 24	HOL	JRS:	<u> </u>	CAV	ING> C		
		•	٥.	Φ	S	00	TES	resul		
Depth	(1)	Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit -		Liqui	id Limit
٤۵	5	2 0001.191.101.1	Gr	Sa	ا ^ھ ئ	> %	Water Content -			
0							Penetration - [40 5	50
	(SC) Clayey Sand, low-	medium plasticity, slightly damp, light brown	7777	8509	В		10 20	30 4	:	:
								:	:	:
							<u>-</u>		:	
	\dashv								·	
	_								:	
2.	5						L <u>.</u>		:	
╙							<u> </u>	:	:	:
							<u> </u>		:	
							<u> </u>			•
l									:	:
5									:	
7.:	I	Boring terminated at 5 ft.	12.2.2.							•
		<u> </u>							:	•
									:	•
	_								:	•
										·
7.	5						- <u>-</u>			
									.;	:
										: :
							<u> </u>			
10							L		•	
								:	:	:
									•	•
1.0	_								:	
12.	5									
									·:	:
									: .:	: :
15							L		:	
							<u> </u>		: 	
							L	:	:	:
									:	:
							<u> </u>	:	:	
17.	5						F			•
 	<u> </u>						<u> </u>		· · · · · · · · · · · · · · · · · · ·	
	-								· · · · · · · · · · · · · · · · · · ·	
L	\dashv						<u> </u>		÷	·

		PROJECT: Cadence Phases 2 and 3					PROJECT NO.:	8144
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon	ı, LLLP					
(role (PROJECT LOCATION: Ellsworth Road and Gu	adalupe Ro	oad				
	THE PT PERTS LLC.	LOCATION: See Site Map				_ [ELEVATION:	
م ا		DRILLER: D&S Drilling				ı	LOGGED BY:	SD
LO	G OF BORING	DRILLING METHOD: 8" Power Auger					DATE:	
	No. BC9		AFTER 24	4 HOL	JRS:	Ť	CAVING	
				_	1	_	TEST RI	·
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	< #200		Liquid Lir
9 8		Description	Gra	San	B S	> %	Water Content - •	•
				-		·`	Penetration -	
0	(CL) Sandy Clay Joyy	medium plasticity, slightly damp, light brown	. ///] 18509	9 9		10 20 3	0 40 50
	(CL) Sandy Clay, low-	medium prasticity, stightly damp, fight brown	' ///	1				
			\///	1			<u> </u>	·
				1				· · · · · · · · · · · · · · · · · · ·
				1			L	
2.5				7				
			1///	1				
				1			: :	
			\///	1			<u> </u>	
				1				
			1///	1			-	.
. 5			_///	1				
	В	soring terminated at 5 ft.						
								: : :
 								
7.5							<u> </u>	
\vdash								
10							L i i	: : : : : : : : : : : : : : : : : : :
							: :	
12.5							-	
							<u> </u>	
							ļ	
							<u> </u>	
15								
							<u> </u>	
							<u> </u>	
17.5							L	
							L	. :
							: : : : : : : : : : : : : : : : : : :	: : : : : : : : : : : : : : : : : : : :
1								

		PROJECT: Cadence Phases 2 and 3				_ 「	PROJECT NO.	•	81	44	
		CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,									
((Prole X)	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	ad							
	THE DY PERIS LLC	LOCATION: See Site Map				_	ELEVATION:				
م با	G OF BORING	DRILLER: D&S Drilling				_ L	LOGGED BY:		SE		
-0		BRIEZING METHOD: 6 Tower Auger						TE: _		7/2018	8
	No. BC10	DEPTH TO - WATER> INITIAL: ₩ A	FTER 24	HOL	JRS:	¥	CA	VING>	· <u>C</u> _		
۲ (. <u>e</u>	<u>e</u>	, ts	00		ST RES			
Depth (feet)		Description	Graphic	Sample No.	Blow Counts	% < #200	Plastic Limit Water Content			Liquic	d Limi
			Ū	ß	1 0	%	Penetration -				
0				0540			10 20		40	5	0
	(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		8510	ľ						: : :
2.5				ł			<u> </u>	:	· · · · · :		: :
				1			L : :		:		•
			<i>\///</i>	1			: :	:	:		•
2.5				1					:		
				1				:	:		:
				1				:	:		•••••
				1			F	• • • • • • • • • • • • • • • • • • • •	•		• • • • • • • • • • • • • • • • • • • •
	1			1			<u> </u>	•			:
5				1				:	:		: :
	В	Boring terminated at 5 ft.	1//	1			F:				: :
	_						F		:		:
											:
									:		:
											:
7.5							<u> </u>				<u>:</u>
											: :
											· :
											· :
							.				: :
10							L				<u>:</u>
							<u></u>	:	. .		: :
							: :	:	: <u>:</u> .		: :
							L				: :
							<u> </u>		:		: :
12.5							<u> </u>				: :
							<u> </u>				:
							<u> </u>				: :
								:			:
							[
15									:		
							F				:
	1						<u> </u>	• • • • • • • • • • • • • • • • • • • •			:
							F		:		:
							<u> </u>				:
1							<u> </u>				: :
17.5							-				: :
							<u> </u>				· ·
1	I		1	1	l		L				

(LO	Fole Many Costs Lee	CLIENT: PPGN-RAY, LLLP and PPGN-Crismon, PROJECT LOCATION: Ellsworth Road and Guac LOCATION: See Site Map		ad						
) LO	THE PRINTED LACE		lalupe Ro	ad						
_0(ne or Years LLC	LOCATION: See Site Map								
_0						E	LEVATION:			
_()(DRILLER: D&S Drilling					.OGGED BY:		SD	
	G OF BORING	DRILLING METHOD: 8" Power Auger					DAT		/27/201	.8
	No. BC11	DEPTH TO - WATER> INITIAL: ¥ A	FTER 24	HOU	JRS:	¥		NG> C		
								RESULT		
(feet)		Description	Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	REGGE		d Limit
<u>a</u> e		Description	Gra	San	S m	, N	Water Content -		•	
			ļ <u> </u>			%	Penetration -			
0	(CL) Candy Clay Jaw	medium plasticity, slightly damp, light brown	777	8510 ⁻			Penetration - 20	30 4	10 5	50
	(CL) Sandy Clay, 10w-	medium plasticity, slightly damp, light brown								:
								·	:	<u>:</u>
									· 	:
								.	: :	<u>:</u>
2.5								:	•	:
			1///				: :	:		:
									:	:
			1///				<u>-</u>		:	:
									: :	:
							<u>-</u> <u>:</u> <u>:</u>	· · · : · · · · · · · · · · · · · · · ·	•	:
5	σ	anima tampinatad at 5 ft	1///						: •	:
	В	oring terminated at 5 ft.								:
									· 	
									:	:
							<u> </u>			•
7.5								:		:
								:	•	•
							<u> </u>		:	:
										:
									:	<u>:</u>
10									: : :	<u>:</u>
									· :	<u>:</u>
									: :	: :
2.5								:	•	: :
								:		:
									:	:
									•	:
										:
									:	:
15										
\dashv									<u>.</u>	<u>.</u>
							<u> </u>		.	:
										: :
							_ : : : : : : : : : : : : : : : : : : :		:	<u>;</u>
7.5								:	:	:
								•	•	•
									• • • • • • • • • • • • • • • • • • • •	:
			1							<u>:</u>
	5	5 B 7.5 10 2.5	5 Boring terminated at 5 ft. 2.5 2.5 2.5 3.5 3.5 3.5 3.6 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7	5 Boring terminated at 5 ft. 10 2.5 15 15 15 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	5 Boring terminated at 5 ft. 10 2.5 15 15 15 15 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	5 Boring terminated at 5 ft. 7.5 2.5 10	5 Boring terminated at 5 ft.	5 Boring terminated at 5 ft.	5 Boring terminated at 5 ft. 10 2.5 5	5 Boring terminated at 5 ft. 10

			PROJECT: Cadence Phases 2 and 3					PROJECT NO.:		3144	
- 1			CLIENT: PPGN-RAY, LLLP and PPGN-Crismon,	LLLP							
- 1	(role X	PROJECT LOCATION: Ellsworth Road and Gua	dalupe Ro	ad						
- 1	`	THE PT YPERTS LL.C.	LOCATION: See Site Map	-			Е	LEVATION:			
			DRILLER: D&S Drilling					OGGED BY:		SD	
- 1	LO	G OF BORING	DRILLING METHOD: 8" Power Auger					DAT		/27/201	
- 1		No. BC12	DEPTH TO - WATER> INITIAL: ₩ A	FTER 24	ı HOI	JRS:	¥		ING> C		
ŀ	Т	1101 2012	,			1			r RESUL		
- 1	흔			Graphic	Sample No.	Blow Counts	< #200	Plastic Limit	RESUL		id Limit
- 1	Depth (feet)		Description	jrap	Sam S	Son B	# V	Water Content -		Liqui	G Ellilli
L					0)		%	Penetration -			
ŀ	0			1,,,	8510			10 20		40 5	50
L		(CL) Sandy Clay, low-	medium plasticity, slightly damp, light brown		16510	f		<u> </u>		: 	: :
亶								: :	:	:	:
s e				Y///	1					:	:
֓֞֡֞֞֜֞֓֓֓֓֓֓֓֓֡֓֓֓֓֡֡֓֓֡֓֓֡֓֡֡֓֡֡֡֡֡֡֡֓֡֡֡֡]			 : :	• • • • • • • • • • • • • • • • • • • •	:	:
غ ا				Y///	1					:	:
5	2.5]			<u></u>		<u>:</u>	:
<u> </u>				<i>Y///</i>	ł					:	:
ž					1			<u> </u>	•	<u>:</u>	<u>:</u>
š				<i>Y///</i>	ł			<u> </u>		<u>:</u>	<u>:</u>
ğ g					1			: :	:	:	:
je T	5			<i>Y///</i>	ł					:	:
ie i		В	Soring terminated at 5 ft.	1	İ					:	:
ا ق			C					<u> </u>			
This information pertains only to this boring and should not be interpreted as being indicitive of the site.										:	:
밀										:	<u>:</u>
<u></u>											
g P	7.5									:	:
g										: :	
ב ב								L	:	:	:
s D										:	:
֓֞֞֞֞֜֞֝֞֜֞֝֞֜֞֡֞֞֞֞֞֞֞֞֞֞֞֞֞֞֡֞֞֡֞											
≛ั	10									•	
<u>ة</u> إ								: : : : : : : : : : : : : : : : : :		: :	:
<u> </u>										<u>:</u>	:
5											<u>:</u>
H at								ļ			
<u>ا</u> ةٍ	12.5									: .;	:
<u>s</u>											
ا									:	:	:
Ī										:	:
ŀ										:	
ŀ											· · · · · ·
ŀ	15							F			
ŀ										<u>:</u>	
-										: ::	
Į										<u>:</u>	<u>:</u>
								<u> </u>		: 	<u>:</u>
	17.5								:	:	:
Ī											
ŀ	-							H	• • • • • • • • • • • • • • • • • • • •	:	
ŀ											• • • • • •

Appendix D

Key To Soil Symbols and Classifications

High plasticity
clay
(CH C)
Inorganic silts

Inorganic silts and clays (CH-MH -- MC)

Low plasticity clay (CL -- 0)

Low-high plasticity clays (CL-CH -- CO)

Silty low plasticity clay (CL-ML -- CZ)

Fill (FILL -- F)

Clayey gravel (GC -- 08)

Clayey sand and gravel (GC-SC -- DO8)

Silty gravel (GM -- Z8)

Silty clayey gravel (GM-GC -- ZO8)

Silty sand and gravel (GM-SM -- 08)

Poorly graded gravel (GP -- G)

Poorly graded gravel with clay

(GP-GC -- DGO3)
Poorly graded gravel

with silt (GP-GM -- DGZ3)

Poorly graded gravel and sand (GP-SP -- :G)

Well graded gravel (GW -- 83)

Well graded sand (SW -- D)

Well graded sand with clay (SW-SC -- DR)

Well graded sand with silt (SW-SM -- D=) Well graded gravel with clay (GW-GC -- 830)

> Well graded gravel with silt (GW-GM -- 832)

Well graded gravel/ clayey gravel (GW-GP -- 83G)

Well graded gravel and sand (GW-SW -- 83D)

Elastic silt (MH -- M)

Silt (ML -- Z)

> High plasticity organic clays (OH -- 5)

Low plasticity organic silts (OL -- 4)

Basalt (or generic rock) (ROCK --])

Clayey sand (SC -- DO)

Silty sand (SM -- 0)

Poorly graded clayey silty sand (SC-SM -- : ZO)

Poorly graded silty fine sand (SM-ML -- :Z)

Poorly graded sand

Poorly graded sand with clay (SP-SC -- :R)

Poorly graded sand with silt (SP-SM -- :=)

Well graded sand with gravel (SW -- D9)

Silty sand with gravel (SM -- 09)

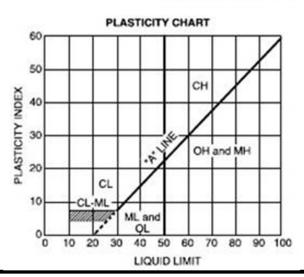
Clayey sand with gravel (SC -- DO9)

Relative Density of Cohesionless Soils (blows/ft)					
Very Loose	0 to 4				
Loose	5 to 10				
Medium	11 to 30				
Dense	31 to 50				
Very Dense	over 50				

Relative Degree of Plasticity (PI)					
Non-Plastic	0				
Low	1 to 7				
Low-Medium	8 to 14				
Medium	15 to 21				
Medium-High	22 to 28				
High	29 to 35				
Very High	Over 35				

Relative Proportions (%)						
Trace	1 to 10					
Little	11 to 20					
Some	21 to 35					
With	36 to 50					

Particle Size Identification (Diameter)						
Boulder	8.0" or Larger					
Cobbles	3.0" to 8.0"					
Coarse Gravel	0.75" to 3.0"					
Fine Gravel	5.0 mm to 3.0"					
Coarse Sand	2.0 mm to 5.0 mm					
Medium Sand	0.4 mm to 2.0 mm					
Fine Sand	0.07 mm to 0.4 mm					
Silt	0.002 mm to 0.07 mm					
Clay	Less Than 0.002					



ProTeX the PT Xperts

